MOTOR AGE

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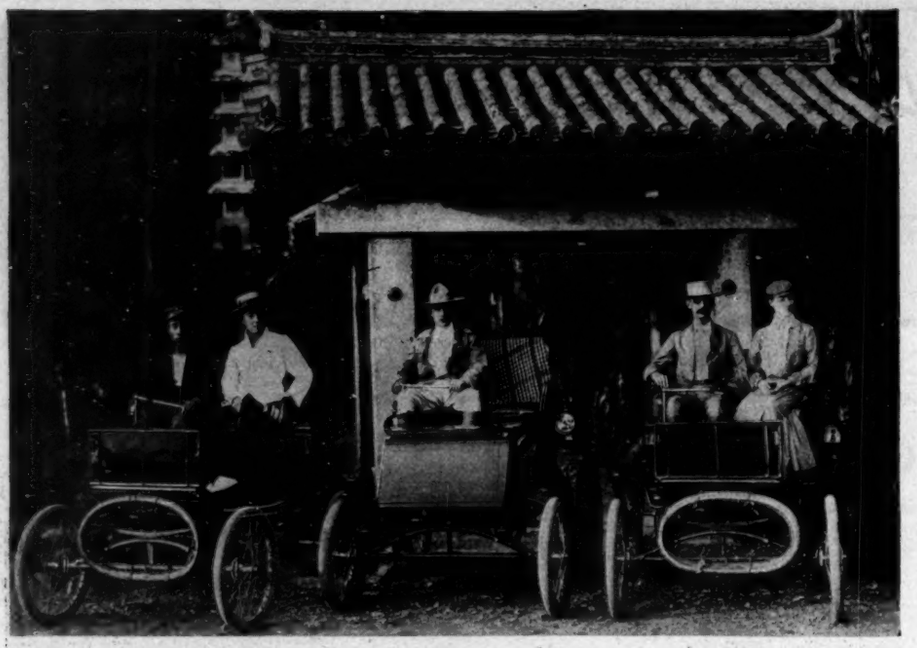
MOTORING CONDITIONS IN JAPAN

JAPAN'S OPENING DAY PARADE

JAPAN, the land of the rising sun; this quaint country, almost Lilliputian in its diminutive picturesqueness! One would have thought that this country would escape the invasion of the motor car, but no; there are privately owned cars and an unusually flourishing transportation company in the Mikado's domain. Japan, however, is far from being an ideal country for motor travel. A great deal has been written about the delights of touring through this land, dashing along boulevards, speeding beside the sea waves, climbing up well-kept mountain roads, but it is all fiction. Some imaginative souls, who had no accurate information, have thought these things ought to be. Japan, to the exoteric, is a name to conjure with; a "Land of the Heart's Desire," like Hawaii; a country of romance and mysticism, art and poetry, orderliness and neatness, dainty country places, stately temples, general thrift; why should it not be an ideal place for motoring? And straightway they wrote it down as such. But one will look in vain for an attractive stretch of beach sand, for a wide boulevard or for a fine mountain road.

Japanese roads are as they have been for centuries, designed only for the most primitive traffic and with the same economy of space which is everywhere manifest. Country roads or city streets, take your choice, average less than 25 feet in width, and this means, in the cities, from wall to wall of the buildings. There are no sidewalks at all except in Tokio and foreign settlements. People and vehicles mix indiscriminately and look out for themselves as best they may. A 25-foot street is considered a wide one. It maintains the same relation to the average street that a boulevard does to America's common streets. Fifteen to 20 feet is a closer approximation of the width of most of these Japanese streets. Remember, again, that this is from wall to wall of the houses. The eaves are closer than that. In many places a touring car with a top



STEAM VEHICLES IN KIOTO IN AUGUST, 1903

would be compelled to put it down before rounding a corner, to keep from knocking down awnings. When an effort was made a while ago to have some of these streets widened, people objected, because if this took place, they couldn't walk down the center of a business street and view the shop windows on either side, they would be compelled to cross from one side of the street to the other to see what was on exhibition!

In the country it is even worse; the roads are much narrower—many are not over 6 feet wide and are lined with paddy fields. A paddy field is a rice field. Rice grows best where the land is completely covered with water, and as this land has been used for centuries, fertilization is necessary. All sorts of filth is used for this purpose, and to ride along a paddy field is far worse than to take a trip through a lane lined on one side by tanneries and on the other by glue factories. The Japanese do not seem to mind; their olfactory sense seems to have been blunted by generations of familiarity with such conditions, but to a Caucasian a paddy field is a cross between a mud flat and a very foul sewer. Now imagine running an automobile between two such fields on a road so narrow that the wheels really overhang a little on either side, when the slightest mistake would send the tourists headlong into the mess. This is one touring condition which does not invite an intimate acquaintance.

In the mountains other conditions confront one. The same narrow roads obtain, but with this additional trouble, that over some of the steepest passes steps are cut in the road to make the footing better, for Japanese roads, you know, are primarily intended for pedestrians and 'rickshas. In the mountains, too, more streams are encountered and bridges are a great rarity. From Tokio to Kobe over the Hakone mountains the road is hardly more than a mountain path, and there are a number of places where the inevitable steps occur. These places are so steep that even 'rickshа passengers get out and walk. Between Nogoya and Kobe there are about 150 miles of fairly good road, but there are three large rivers to cross and no bridges. The only boats are sampans, which are about 15 feet long and 5 feet wide, similar to small rowboats. It might be possible to tie three of these together, put planks across, and so ferry a car over, but there is a convenient railway over the worst of this trip, which is the logical solution of the problem. Many think it is the only solution.

Does the foregoing make it appear that the motor car and Japan are to remain strangers? Perhaps such might be the inference, but the fact is otherwise. Conditions are not favorable, but motor cars are there, and their number is constantly on the increase. The first to make their appearance before the astonished natives were a couple of Locomobiles, the ubiquitous little steamers which were so popular not so very long ago, but which now seem almost as archaic as a high-wheel bicycle. In the course of time others made their appearance. A Daimler was brought over, a Darracq and then a couple of English steamers known as the Turner-Meisse. The motor car became an entity and a new word had to be added to the Japanese language. The strange vehicle was called "jidosha," a literal translation of which would be equivalent to the name by which

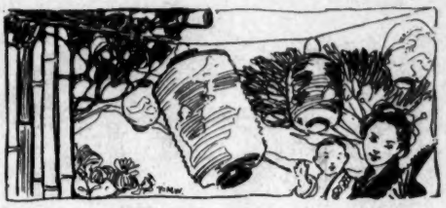
a motor was first known the world over—"horseless carriage." Children grew interested, and when a car came feeling its way along a narrow road, the youngsters would come from all directions calling "jidosha! jidosha!" at the top of their shrill, animated voices. One naturally inquires what interest the emperor takes in the new sport of kings, for go where you will, say what you please, do what you like, whatever may have been the "sport of kings" in times past, that sport is now motoring, and the king who doesn't enjoy it has something lacking in his make-up. Well, it must be confessed that it is doubtful whether the emperor has ever been in a motor car, but it must be remembered that this enlightened monarch has had a war on his hands and has devoted more attention to the explosive power of gunpowder than to that of gasoline; however, it is safe to say that the emperor will be there before long. The crown prince some time since entrusted his royal person to a French car which he purchased and put in the charge of a French chauffeur. The combination ought to have worked, but it didn't. The chauffeur was not up to the average of his nationality, and the luster of the varnish had not been dimmed on the new car before he smashed it badly and incidentally discouraged the crown prince's interest in the sport. The Prince Arisugawa took up the game, and profiting by the crown prince's experience, he eschewed chauffeurs and learned to run the machine himself. He is becoming an adept and is fond of the sport. It is, of course, only a question of time when the Japanese nobility will take up the game, but the popularity of motor cars will necessarily be slow in advancing. There are obstacles, inherent in Japanese conditions, which must be overcome. Wide roads are few and the narrow roads are very narrow. It almost seems that the tread will have to be narrowed before cars can travel comfortably along some of the lane-like roads. There are special conditions which call for special cars.

Foreseeing this, an enterprising native undertook to build a car which would do the work. He copied all the foreign ideas he could gather together, as the Japanese are noted for doing. He procured a gas engine of early date and cast about for material of which to build his car. Of course he used bamboo; it was natural that he should. The thought of using anything else never occurred to him. The machine was finished, and miracle of miracles, it ran. It started on its trial trip, but alas for the selection of its material. Bamboo is used for houses, kitchen utensils, furniture, ornaments, mattresses, all sorts of things, and gives good service, but when it struck a motor car it met its limit. It was never intended to resist the vibration of a single-cylinder gas engine. The car's progress began to be marked by fragments of bamboo. It looked like a game of hare and hounds brought up to

date, with bamboo confetti used to mark the trail. The fragments left held together bravely, trying to uphold the honor of its general utility, but finally the last vital stick gave way with a groan and the brave inventor was left with the hapless motor—a sadder and a wiser Jap. Maybe that is slightly exaggerated, but very little. It is typically Japanese. The little brown man thinks he can do anything any one else can, and he comes pretty close to doing it, but in his own way. He operates along lines which are the reverse of American. When he uses a plane in carpenter work, he draws it toward him. If he wants to make a garden, instead of using a spade and throwing the earth forward as he turns it over he uses a heavy hoe and draws it toward him. Watch a Japanese butcher sharpening his knife on a steel and you will see him holding the steel upside down. But he gets there.

The Japanese are the most wonderful landscape gardeners in the world; quaint miniatures they build, with small lakes and fountains, waterfalls, rockeries, winding paths, stunted shrubberies and trees; one looks for a race of dwarfs to populate them. Every stone is correctly placed in just the spot for which it is fitted. Every tree or bush is in its proper nook. The artistic eye looks in vain for something to mar the ensemble. To introduce motor cars into some of these gardens, run them through the grounds as we do in our own country homes would never occur to you. It would be too incongruous. Moreover, it is doubtful if any gardens have pathways wide enough for them. The diminutive scale of everything Japanese can hardly be realized by one who has not seen it. The main island itself as its narrowest point is only 80 miles wide. Strangely, enough, there is a good road leading across from Hamizi to Kinosake Hot Springs, on the China sea, but good roads in Japan are not American good roads, so don't think you can make it in a day. Take along some food, too, some you will relish, or you may have to dine on boiled rice, paddy field rice, and raw fish. About half way across this road lives an old English sailor, an ancient seadog, long wedded to a Japanese girl. He seems perfectly contented and evinces no desire to leave. But share your lunch with him, give him some tobacco, and the stories he will tell of strange adventures on the sea and strange happenings since he undertook the Japanese life are interesting.

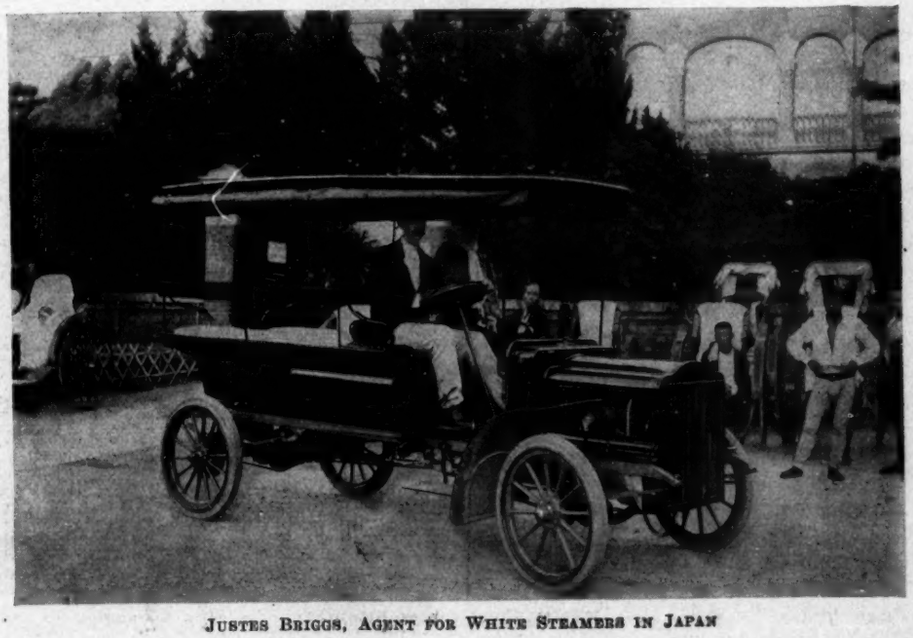
It has been stated that the Japanese do everything backward. Here is one more example: In America the pleasure car has been the forerunner of the utility car, but in Japan the commercial vehicle has taken precedence and the pleasure car may follow as best it can. You know the Japanese have long been chiefly dependent for transportation about town upon jinrickshas or 'rickshas as the word is customarily abbreviated. It is evident, therefore, that such a condition offers a wide field



for motor buses. It did not take long for this to become noticeable, and in the old days of the Mobile steamer two Mobile wagonettes were imported for the purpose and started running in Nagoya. They were an immediate failure. Sufficient care had not been taken to instruct the operators. The cars were turned over to Japanese drivers and the first time a low-water alarm was shown by the well known jet of steam spurting out in front, the careful stranger thought he had sprung a leak, got out, adroitly plugged the hole and then went on his way rejoicing until the boiler burned out. Both machines were put out of commission this same way, and while they could have been repaired, their owners were discouraged. These were followed by two waterless Knox cars, and these both failed, solely, it is stated, in justice to these staunch cars, through the incompetence and ignorance of the operators. With these two failures to profit by, Osaka Jidosha Kaisha was formed to operate in Osaka and do a general transportation business. Justus Briggs was commissioned to visit the United States and to purchase five cars of any make he might select. He chose White steamers, and obtained the Japanese agency for these vehicles, bringing back with him also a White touring car for his own use.

The first step necessary after selecting cars was to apply to the governor for a franchise. It seems odd that application should be made to the governor of a state for a city franchise, but notwithstanding the fact that the city has a mayor, the governor is the person, for by Japanese law city streets are under police control and the police are responsible to the governor, not to the mayor. The application was next referred to the mayor and the police, whose duty it is to go over the streets proposed to be traveled, compare their width with the dimensions of the machines to be operated, examine bridges and report the feasibility of the project. The company had stated that it intended to use White steam cars and had given the dimensions as 5 feet 6 inches wide and 15 feet long. The franchise was finally granted and then a general city ordinance was framed regulating the use of motor cars for carrying passengers. It having appeared that a White steamer 5 feet 6 inches wide and not over 15 feet long was not harmful to the peace of the city, it followed that every other motor car was, and hence it was gravely enacted that no company should operate in passenger service any other car than a steam car 5 feet 6 inches wide and not over 15 feet long.

In January, 1906, an order was placed with the White Sewing Machine Co. for five chassis of the current model, and in due course they arrived in Osaka, which, by the way, is one of the great manufacturing cities of Japan and contains over a million inhabitants, so there was no doubt of patronage. The bodies for these chassis were made in Japan and are of the wagonette type. The company started out with the utmost care and conservatism. It hired as head mechanic a young native who had been educated in Glasgow, and had later spent 7 years in the Union Iron Works, San Francisco. It imported from Cleveland an expert, who spent a couple of months giving instructions to all employes. It got careful native boys for chauffeurs and saw that they were well instructed. It employed and trained a good corps of night workmen so that all repairs could be done at night and the cars be ready for service next morning. How well



JUSTUS BRIGGS, AGENT FOR WHITE STEAMERS IN JAPAN

they did their work is evidenced by the fact that in all their running only one car has been laid off, and this was smashed in a collision with a locomotive. The operator saw the engine coming, but the gates were still up and the chauffeur thought he could get through. The engineer fooled him and the car was struck in the rear and badly damaged. None of the occupants was injured, but a native who was riding a bicycle and had learned the American trick of using an automobile for a wind break, was killed.

The sequel of this accident gives a curious illustration of Japanese justice. The gate keeper was arrested for his carelessness in leaving the gates open. He was convicted and fined 5 yen. This was accepted as a cue by the Jidosha company, which promptly sued the railway company for damages to the motor car. The judge, however, decided that the chauffeur was as negligent as the gate keeper, for he saw the engine and should have stopped. Whereupon, the chauffeur was arrested, convicted and fined 30 yen. There is a moral to this if you want to look for it.

When the first five cars were ready there was a grand opening, and the city officials took the initial ride; the line was opened to the public September 28, 1905. At first the officials were suspicious and the cars were allowed only in the suburbs. The route of these cars is an 11-mile round trip from the outskirts of Osaka to a beach resort greatly frequented and the machines are in constant service from 8 a. m. to 10 p. m., each making about 100 miles per day. Tire troubles are unknown. Solid tires of Swinehart make are used, and it has certainly been demonstrated that on a

comparatively slow run over good roads solid tires are practicable. The freedom of the cars from extensive repairs is evidence that where machines are carefully used, solid tires will not rack them unduly. It has also been proved that solid tires will wear. The rear tires stood 17,000 miles of wear, and at the time they were replaced it was estimated that the front tires were good for 5,000 more.

The venture has proven an entire success. And after the cars had been run for 7 months, fifteen more were ordered. When it became known that more cars were needed the owners of the Mobile wagonettes thought this a good opportunity to sell, and offered them very low. The offer was refused. Finally an offer was made that the Jidosha company take the cars, and if they could be made to run satisfactorily, then the company should pay whatever it considered them worth. The offer was certainly tempting, but the conservatism which has marked the company's course all the way through again manifested itself. Untried cars might not do the work and the company would come into disrepute. So the offer was declined.

Encouraged by the success in Osaka a company was formed in Shidzuoka, a city in the center of the tea district, and six White steamers of a type similar to those used by the United States government for ambulance purposes were purchased. It was originally intended to put wagon bodies on the chassis and use them for hauling tea from the plantations down to a new port, from which the Toyo Kisen Kaisha line of steamers takes it directly to the United States, but it was subsequently decided to use these in passenger service and to defer the tea hauling until trucks of the same make could be secured. The Osaka company is making elaborate plans for the future. When the fifteen new cars arrive the service now given is to be considerably extended and a route taken from the present terminus at the outskirts of the city into the heart of the city at the main depot, from which a trolley line runs to Kobe. The motor cars have long since demonstrated their fitness to be tolerated in the city and will no longer be compelled to operate in the suburbs. When the new plans are completed they will mark a feature which is extremely novel—through transportation tickets sold on a combination of motor car and trolley service. The route is from Kobe to Sakai, the seaside resort above mentioned, via Osaka. Each through ticket will cost 45 sen and the trip is divided up as follows: Trolley line, Kobe to Osaka, 18 miles, 21 sen; motor line, Osaka to Sakai, 8½ miles, 24 sen. A sen corresponds to the American cent, but being on

TRIAL TRIP OF THE FIRST SIX CARS SENT TO JAPAN FOR OMNIBUS SERVICE

a silver basis it is worth only ½-cent in Yankee money. A yen is the equivalent of a Mexican dollar.

It may be interesting to mention the salaries of those engaged in this work. The head mechanic heretofore mentioned gets 125 yen a month. Chauffeurs are paid 50 sen a day; conductors, who collect the fares, the same. There are two shifts of these during a day, each of which works 8 hours. All the chauffeurs know is to run the cars; they have nothing whatever to do with the repairs. Mechanics get about the same pay as drivers. Cleaners get 30 sen a day. The girl who sells tickets gets 10 sen. All employes are Japanese and have learned their work in Japan. It took some teaching, too. Mechanics needed to be taught the importance of thoroughness. Cleaners at first thought it more important to keep paint and brass bright than to clean the working parts and be careful about lubrication. The same care of the cars is exercised as obtains in a locomotive round-house. Every car is carefully inspected after each run and any indication pointing toward future repairs is looked after immediately. Oil is inserted in crank and gearcases regularly. The consequence has been not one breakdown, with the exception of the collision which has been mentioned. The chauffeurs have been taught care, and beyond this accident there has been no other, with one exception, and this resulted in the killing of a child. He was an enterprising little fellow, and was trying, on a wager, to see how many times he could cross and recross the narrow street before the car came. The chauffeur tried to dodge him, but the little fellow was determined on his own undoing.

The Osaka Jidosha Kaisha has undoubtedly done more for the motor car than any other influence in Japan. It has paved the way for the commercial vehicle and the pleasure car will follow, even though it is a fact that there are more commercial cars of the make and type used by the Osaka company than there are pleasure cars of all makes in the country. But the pleasure car will come. The commercial car has demonstrated its practicability and a touring car to meet Japanese conditions will be devised. When it arrives it will be welcomed by the nobility, who, like the leisure classes everywhere, are looking for enjoyment; but it will be a long while before the merchants and middle classes generally will be able to enjoy themselves in this way, much as they may want to. The war has hit them too heavily and they have no spare money for luxuries. They are hard put to it to look after the necessaries. No, it is the commercial vehicle toward which the motor trade in Japan will turn for some time to come and to which its energies will be directed.

WHAT THE TOURIST TROPHY RACE PROVED

London, Oct. 6—The English are now enjoying the aftermath of the Tourist trophy race. That is to say, some of them are enjoying and the others are recovering from disappointment and tribulations. The Argyll company has got into hot water with the automobile club over the indiscretion of its advertisement manager, who posted in the daily press immediately on the official verdict being promulgated which disqualified the Argyll car a flaring comparison between the price of the Argyll "which finished second" and that of the winning Rolls-Royce—a difference of $1,500. The automobile club promptly warned the firm on pain of disqualification of itself and its cars from all future events held by the club against repeating the misleading announcement and invited an explanation in view of subsequent action. This letter was sent to the entire press, as it fully explained the cause of the disqualification and how little the Argyll performance really meant.

Another of the competitors who is being pursued for damages caused by driving into and through the bridge at Sulby in practice has advanced the novel theory that the club should foot the bill and so on. But the most interesting feature today is the manner in which the future of the contest is regarded and the steps which are being suggested to bring the race into line with practical touring developments. Captain H. H. P. Deasy, who entered two cars for the recent contest, one of which was smashed in a training spin and the other developed gear faults owing to weak shaft design, is the first out with his ideas, the principal of which are:

The minimum chassis weight to be increased to about 2,000 pounds, with a view to the fostering of a strong, serviceable type of car, suitable for ordinary touring conditions.

A minimum clearance of ten inches so as to discourage low chassis, which are such a fruitful cause of raising dust.

A minimum track of 4 feet 3 inches, which will be necessary if the previous suggestion is adopted.

A minimum distance from the dashboard to the front edge of the back tires of 1.6 metres, as this is the distance which nearly always regulates the size of the side doors and the dimensions of the front seat. The minimum wheelbase might well be discarded, as if manufacturers can build cars with short wheelbases—complying with the above rule—that can be driven in safety at a high rate of speed on a course like that in the Isle of Man, then so much the better.

The efficiency of mufflers to be tested.

These would mean an additional 750 pounds' weight to play with in the chassis, which, with an amended fuel consumption, could scarcely fail to induce larger engines and a greater speed—just the two lines of development which it is considered inadvisable to encourage. What is considered a more serviceable idea is to raise the minimum chassis weight to about 1,600 pounds, keep the fuel consumption where it is, limit the maximum volume swept in cylinders, so as to shut out scorching freaks not intended to finish and only run for a fast lap or so to get the advertisement, and in other ways bring the type of car evolved more into line with current standard practice. What is really wanted by the trade in connection with this event is the advertisement of a moderately powered touring car shown to be capable of good speed on a low consumption—a car ranging in price, according to money spent on body, etc., from $1,500 to $2,500, able to take five passengers if required, and to average from 20 to 25 miles per hour on a 25-miles-to-the-gallon limit. The present conditions induce a sort of touring racer quite different from any standard car, so uncomfortable as to be unsaleable, so lightly constructed as to be incapable of going through a month's hard driving without repairs, and altogether not a genuine or commendable type. Captain Deasy further proposes that any other fuel, and not gasoline alone, shall be permitted. The idea is born of the fact that British manufacturers are now signing contracts for next year's supply on a basis of a shilling per gallon—an advance of from 25 per cent to 40 per cent on current contracts. But such a departure would entail the abrogation of the mileage limit in favor of a price scale. This proposition is 24 cents cost for each 20 miles of road covered. This is certain to be well received by the majority of the trade, but whether the club will be of a like mind is difficult to say.

On Wednesday evening next the Society of Motor Manufacturers and Traders will meet to discuss proposals that the members of the society should bind themselves by legal agreement, under a penalty of $2,500, as liquidated damages, to refrain from giving or offering trade discounts or commission to those not in the trade. The object is to squeeze out the amateur tout and the motoring hanger-on who squeezes 5 per cent and even 10 per cent out of the manufacturer for his introduction and good services, and to prevent the retailer from sharing his commission with his customer, thus practically cutting prices. The general impression is that the agreements aim at too much and are moreover premature. If the whole of the trade were embraced in the society, or if the manufacturers and agents had separately powerful organizations, able to coerce each other, the idea would be feasible. But as there are quite a large number of agents who are independent, and who can get all the cars they want directly from the continent, the scheme seems to be doomed to rejection.

CUP DRIVERS GO HOME

Frenchmen, Italians and Germans Sail for Europe—Wagner Will Take Part in Ormond Meet

New York, Oct. 16—Heath, of the French, and Lancia, Nazzaro and Cagno, of the Italian team, sailed today. Clement and Duray, of the French; Jenatzy, of the German, and Dr. Weillschott, of the Italian team, took their departure last Thursday. Elliott F. Shepard expects to sail next week. The last named says he will make effort to return next January and compete in the Florida tournament. Louis Wagner, the winner, who is still here, says he expects to be the driver of the high-powered sprinter the Darracq people propose to enter for the mile record and 2-mile-a-minute contests at Ormond. It is said to be more than likely that the 1906 Vandervilt cup winning car will remain in this country along with the victorious Darracq of 1905, offers for it having been received from several racing enthusiasts, among them a friend and neighbor of Arthur A. Zimmerman's, C. A. Schroeder, who already owns a 38-seconds' Darracq, a well-known Atlantic City beach contestant; and is also the owner of the crack motor boat, Dixie, which raced at Palm Beach last winter.

The Vanderbilt cup winner has been generously wined and dined since the race. Last week Wagner was tendered two banquets at the Cafe Martin—one on Tuesday, by J. F. Martin, proprietor of the cafe and several other Frenchmen; and another on Thursday, Edgar Gibbs Murphy, the crack wing shot, who is a familiar figure at Ormond and all the big automobile courses. At the last-named function there were thirty-six to sit down.

The talk about the construction of a private course for the next Vanderbilt race continues unabated. Rumors of new schemes arise daily. A course is said to be in contemplation in Suffolk county, Long Island, and to have the backing of W. K. Vanderbilt, Jr. The site is within easy reach of the fashionable colony at Shinnecock Bay. The soil is sandy and the land is rolling enough to give the varied grades desirable. The distance from New York, it is thought, would be great enough to discourage an attendance of a size to be unmanageable. The Van Sicklen-Miles suggestion for a speed course set forth in last week's Motor Age created considerable comment and met with no little approval. It seems to be generally accepted that the next race will be run in this country, the view being taken that the Automobile Club of France having withdrawn as a club from the race has forfeited its right for any say as to the places of its running.

A dispatch received today from Washington says Van Buren Rives, representing the Automobile Club of America, was there looking into the possibility of securing a tract of land near Washington to establish an automobile racecourse. He inspected several parcels of land in company with real estate men, and was much impressed with a large tract, oblong in shape, adjacent to the city and reached by two railroads and one street car railway. He said Washington was desirable for several reasons. One was the mild climate; another was that it was the nation's capital and the home of many automobile enthusiasts. Naturally, Washington is much interested in the project.

Information comes to Motor Age to the effect that the Frayer-Miller car, driven by Lawwell in the race, did not suffer in the least from overheating, as was reported. The only trouble was when a chicken went into the air blower case, but this was remedied in a few moments. The Frayer-Miller people are satisfied with the performance of the car, inasmuch as it was entered for the purpose of demonstrating that it would cool perfectly under high speed and continuous running such as the Vanderbilt afforded.

REGARDING SANCTIONS

New York, Oct. 16—At the last meeting of the executive committee of the National Association of Automobile Manufacturers the association's resolution relative to sanctioned shows was so amended that hereafter all matters relative to exhibits of parts and accessories will be taken care of by the Motor and Accessory Manufacturers, Inc. The National association has decided to sanction no shows for the season 1906, except those at New York and Chicago, which means that manufacturers of automobiles, as such, are not permitted to take part in any local show, but that the exhibit must be made by local dealers, branch houses being considered, in this connection, in the same light as dealers. If, however, the Motor and Accessory Manufacturers sanctions local shows, makers of parts and accessories may exhibit thereat without in any way interfering with their right to exhibit at the national motor car shows.

AWARDING SHOW SPACE

New York, Oct. 16—The show committee of the Automobile Club of America began last night its allotment of spaces for the Grand Central palace show to those applicants who had not previously received their space through the A. M. C. M. A. and the Motor and Accessories' Manufacturers, the former having already received 25,000 and the latter 10,000 square feet of the 52,000 square feet available. There were applications for 25,000 square feet, an excess of 8,000 square feet of the 17,000 square feet available for the "unattached." It was said at the club today that the task of allotment would not be completed and the results made public before the end of the week.

YEAR AT THE CAPITAL

Automobile Board of District of Columbia Reports and Suggests Needed Changes

Philadelphia, Oct. 16—The annual report of the automobile board of the District of Columbia for the fiscal year ended June 30, 1906, just submitted to the commissioners by Secretary H. M. Woodward, shows the board held twenty-four meetings during the year, during which time 879 applicants were examined, 873 were recommended and given permits to operate automobiles, six were rejected as incompetent, while 506 cars were assigned identification numbers, 246 cars to which identification numbers had been assigned were transferred to the purchasers of them and eighty-nine cars from different states were registered during the year. Of the 873 permits issued 232 were for electrics, 495 for gasoline, 107 for steam, and 39 for motor cycles, while of the 506 cars that were assigned identification numbers, 114 were electric, 297 gasoline, fifty-two were steamers, and forty-three motor cycles. Of the eighty-nine cars brought in by tourists for their use during a transient sojourn, the largest number came from New York, twenty-seven in all, while Maryland furnished the second largest number, twenty-one, Pennsylvania was third with thirteen, and New Jersey fourth with twelve. Other states represented were: Masachusetts, five; Illinois, three, and the following each one: Canada, Connecticut, Indiana, Kentucky, Maine, Ohio, Rhode Island and Virginia.

At the close of the fiscal year 1,757 cars of all kinds were registered and permits had been issued to 2,377 operators from the date of the first examination held August 11, 1903. As the number of cars increases more difficulty is encountered in keeping an accurate list of the owners, caused by transferring assigned numbers to the last motor vehicle owned. To prevent such transfers from the car to which the number has been assigned and to an entirely different type of vehicle, perhaps, the board recommends that when request is made for an identification number, that on the assignment of such number the secretary of the automobile board shall issue and deliver to the owner of such motor vehicle a seal of aluminum or other suitable metal, which shall be circular in form, approximately 2 inches in diameter, and have stamped thereon the words "Registered motor vehicle, District of Columbia," with the registered number inserted therein. This seal shall thereafter at all times be conspicuously displayed on the car to which the number has been assigned. Upon the sale of a car to which such number has been assigned the vendor shall report immediately such sale and return the registration seal affixed to said car. The further recommendation is made

that all owners of cars operated here be required to procure and display such registration seal. To comply with section 8, which requires operators of motor cars to "exhibit his or her permit to any police officer or to any members of the board of examiners, when demand for such exhibit is made," the board recommends, in the case of chauffeurs, upon the issuance of a permit, to have delivered to them an aluminum badge, oval in form, not more than 2 inches in diameter, and stamped with the words "Registered chauffeur, No. —— District of Columbia," with operator's permit inserted therein. This badge shall be worn by such chauffeur pinned upon his clothing in a conspicuous manner while he is operating a car upon the public highways. It shall be unlawful for a chauffeur to whom a permit has been issued to voluntarily permit any other person to wear his badge, or for any person while operating a car to wear any badge belonging to another, or to wear a fictitious badge. The board urgently renews its recommendation of last year that a fee of $1 be paid for registration and assignment of an identification number for a car owned in the District, and also a fee of $1 for a permit to operate motor cars, other than tourists or non-residents for their use during a transient sojourn, such fees to include seal or badge previously referred to. The report says that the District of Columbia is without exception, so far as the automobile board is aware, the only state or territory that does not require a fee either for registration of the automobile, or license to operate it, or both.

On account of the work involved the report asks that congress be urged to allow certain salaries to be paid the members.

GLIDDEN COMMISSION PRAISES

New York, Oct. 13—In its report the Glidden cup commission says: "The commission specially commends the excellent work of the American Automobile Association touring committee in so ably managing what was unquestionably the most important touring event that has yet been held in America, and takes pleasure in making mention of the work done by the Knox truck in carrying the tourists' baggage over the entire route; the Packard car driven by Mr. Fetch, which doubled the mileage daily in the service of the committee; the White steamer driven by Mr. White, and the Maxwell car driven by Mr. Grant in distributing the confetti; the six-cylinder Arrow furnished by the George N. Pierce Co., as a press car, and the Oldsmobile runabout driven by Mr. Owen, used as emergency wagon, carrying a miscellaneous assortment of supplies for the tourists." Charles J. Glidden stated to the commission that he had presented a silver medal to each of the thirteen persons having a perfect score. The prospect of the next Glidden tour being to Jamestown via the Shenandoah valley has enthused Virginians.

LAYS OUT TOUR ROUTE

Bavarian Automobile Club Names Towns Through Which the 1907 Herkomer Will Pass

Berlin, Oct. 3—Although not definitely decided on, it is more than evident that the officials of the Bavarian Automobile Club have at least a fair idea of the route for the 1907 Herkomer tour. It is believed that Cologne will be the start and Homburg the finish of the big competition and as a result of this surmise Berlin feels somewhat aggrieved. Dr. Stoess, the holder of the trophy, of course has to be consulted in laying out the course, so most likely one of the stages will lead to Zwickau, Dr. Stoess' home city. From there it will go to Munich. On the third day the route will be Munich, Kochel, Kesselberg, Zirl, Arlberg and Lindau. On the fourth day the trip will be to Forstenried, where the flat races will take place; the fifth day will be an exhibition of cars in Munich, and on the sixth day the tourists will go to Homburg, finishing on the Taunus course over which the Bennett cup race was once run. Professor Herkomer has outlined his views of how the tour should be conducted and in a letter to the president of the Bavarian Automobile Club he names the following conditions:

"My conditions for the Herkomer competition next year are now as follows:

"I must be next year the sole judge of what I consider suitable touring cars. N. B.—It would be advisable to set up rules for the minimum of a given horsepower—a minimum wind area for a given horsepower. Cars with advertising inscriptions must be absolutely refused. Only such persons who have never in their life been paid for the driving of a car are permissible as drivers. Nothing must be left to the personal opinion of the observers. Every stop and its duration must be noted in the book, as well as stops for refreshment, any attention given to engine, etc. No observer may ride on the same car for longer than a day. Every car which is disqualified before or during the tour must immediately be disregarded. This could be best done by immediate withdrawal of the observer and book. In order to prevent that horrible racing on the road, which is so absolutely against all my intentions, I propose that every tenth or twentieth car should be an 'official vehicle,' which may not be passed by any cars in its rear without special permission. Water may not be replenished during the drive, nor may there be any arrangement for such in the car, nor may the car stop to take up fresh water. Please remember that the primary idea which decided me to present the trophy was that of a reliability tour of touring vehicles driven by non-professionals."

While the tentative rules do not say so, it is reported that there is an undercurrent of feeling in the fatherland that this big tour should be for German cars and German drivers only, but it is hardly thought likely that any such radical step will be taken by the Bavarian Automobile Club. In the 2 years the tour has been run it has been won by German cars—the first time by a Mercedes and this year by a Horch, despite the fact that in both competitions English, French, Italian and even American cars have been represented.

COMMERCIAL TEST NOW

New York, Oct. 16—The Automobile Club of America announces the promotion of a commercial vehicle test in this city, lasting for 4 days—November 7 to 10. The cars probably will not be divided into classes, the awards being made on the basis of the cost of the work done per ton mile. The plan as at present proposed is to require the competing cars to run over two routes. One will be the long route, extending from the clubhouse to Kingsbridge, at Two Hundred and Thirtieth street, by way of Central Park west, Amsterdam avenue and upper Broadway, returning by way of Sedgwick avenue, Jerome avenue, over Central bridge, down Seventh avenue to the park, and then to Fifth avenue, back to the clubhouse. This will be a 20-mile route. The shorter route, of 10 miles, will run south down Fifth avenue and Broadway to the Battery, returning by West street, thus taking the cars through the most congested traffic section of the city. The cars will be required to carry 50 per cent of the weight of the vehicle with its load. The first day the cars will go over the routes with full loads, making no stops. The second day full loads will be carried and a specified number of stops will be made. The third day the cars will carry no loads and make no stops, and on the final day no loads will be carried, but several stops will be made. The committee in charge of this event consists of John A. Hill, chairman; A. H. Whiting and E. T. Birdsell. Dave Hennen Morris has notified the nominating committee that he would not consent to have his name again used for the presidency of the club. The club expects to be in its new home early in the new year.

ARMY CAR FOR CUBA

Buffalo, N. Y., Oct. 14—After demonstrating for 2 months the use of the automobile in the military service of the United States, Frank J. Sweet has returned to his home in Rochester, N. Y. The experiment was conducted at Fort Riley, Kan. The government maintained in camp an army of 10,000 men who daily went through the maneuvers of war. This is the first time that the officers of the army have used the automobile in military practice and the experiment was sufficiently successful to warrant taking the machine to Cuba for use in possible actual warfare on the island.

MOTOR AGE

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FUTURE CONTESTS

APPARENTLY it is admitted there is need for a change in the contests that are annually promoted ostensibly with the object in view of bringing out the weak points in motor car construction and incidentally securing a little publicity to the motor car. The National Association of Automobile Manufacturers has undertaken to sound the trade on the subject of future contests and is now securing the opinions of its members on the subject. There appears to be no disposition to doubt the wisdom of holding contests of some form, but on account of the widespread dissatisfaction created as a result of the manner in which the last Glidden tour was conducted, a change would seem to be apparently necessary. Motor Age has before suggested that if the motor industry is to be advertised through such affairs as the Glidden tour, the National Association of Automobile Manufacturers is the proper body to conduct such a contest; if the contest is one of sport alone, then some organization not identified with the trade in any manner should foster it. As a matter of fact, however, it is almost impossible to get far away from the advertising feature, no matter how stringent the rules, so that as long as the advertising feature crops up and is likely to crop up it becomes a trade affair and comes wholly within the jurisdiction of the trade governing body. All contests that have been held have been supported by the trade to the extent of assuring their success; without the support of the trade not one of the contests that have been held within the past few years would have been anything but a failure. Whatever may be the opinion of those outside the trade, it will be found that a majority of the concerns identified with the N. A. A. M. will be only too willing to see that body take up this work, which appears to be necessary at this stage of the business and probably will be necessary for a few years to come. The contests will have to be conducted on purely business principles, and if by the trade associations, then with the objects in view of advertising the motor car and with being a means of determining what is good and what is not good in matters pertaining to construction. Nothing that has been held did more than the reliability run of 1903, and this was promoted by the National Association of Automobile Manufacturers for the express purpose of showing how good and how bad were American cars. Other tests are needed for just this purpose and should be forthcoming.

ABANDONING THE HIGHWAYS

AMERICA will undoubtedly be the first country to build an out and out course upon which to hold its big motor car contests, instead of monopolizing the public highways for this purpose. The publication in Motor Age of a well-devised plan for a track of huge proportions has set the ball rolling. Some such scheme as has been proposed has been in the minds of a number of high motoring enthusiasts for a year or more, for they have realized that the time must soon come when the highways for use as a race course would have to be abandoned. There appeared to be almost insurmountable obstacles in procuring a course of sufficient size to permit unlimited speed and yet occupy a limited amount of land. The plan proposed in Motor Age may be improved upon, but not without a vast amount of hard thinking; surely no plan can be devised that will make a more desirable course and at the same time demand a smaller tract of land. Property in the east is so valuable that as little must be used as possible to meet the requirements, and this is what the track proposed will do. It must be conceded that, because of the thickly settled eastern territory, the abundant railroad facilities, the plentifulness of money, and the leisure of the people, comparatively speaking, the east is the logical location of such a track, at this time at least. Appearances now indicate that a track in some form will be a reality before the time rolls around for another Vanderbilt cup race, if one is again held in this country. The proposed pleasure ground, however, should not be controlled by too close a corporation—it should be made possible for all interested in motoring to dip into the pie if there is any desire to dip. The establishment of such a course will be the signal for countries abroad to follow suit, so that this country will have set a pace for other countries to follow. If such pleasure ground shall have been established, where the public may be safeguarded, then the sacrifices brought by the Vanderbilt cup race of 1906 will not have been made for nothing. But it is too much to expect that the public will permit its highways to be used for road racing purposes, beach races have not proved successful except in determining the fact that frightful speed may be obtained from a motor car, and circular track racing has been in the last stages of consumption for a year or more. Some means of testing motor cars beyond the manufacturer's road trials must be devised if the motor car is to be brought anywhere near the state of perfection that may be expected of it during the next decade. Any reasonable proposition that is made to build such a track as has been proposed ought to receive very liberal support from manufacturers and motoring sportsmen, and there is every reason to believe such will be the case when something tangible is brought to light by the powers that be.

SUPPRESSING THE INJUDICIOUS

BRITISH manufacturers of motor cars are attempting to so guard their own reputations and the interests of the motor-buying public as to put the industry on a business-like and substantial footing, and that this policy will be for the benefit of all the survivors of the trade must be acknowledged. The British traders were quick to call to an accounting a concern that, though having secured only second place in a recent contest, made it appear by means of cleverly-worded advertisements that it had made at least the best showing even if it did not say outright that it had won. The concern was called to account by the British motor car trade governing body and was told in plain language that unless such practices were dropped the concern would be barred from taking part in future contests, through which the makers receive a goodly share of comparatively free advertising. There have been times when the makers in this country, not alone those who manufacture motor cars, but the makers of parts, sundries, tires, etc., might have exercised some such jurisdiction with beneficial results to the trade at large. Extravagant and inconsistent claims have been too numerous during the past few years to be of benefit to the trade at large, the purchasing public.

JUMP SPARKS

Automobile row in Chicago developed an economical streak today. Gasoline, of course.

Automobilists were to make economy a factor in their runs it really would be pretty tough on the system.

A. E. George was disqualified in the Tourist trophy race because he lacked sand—in other words, some of his ballast dropped overboard.

The cup race certainly stirred up the animals. Now several makers are about to enter the racing game. There was a little advertising in it after all.

The British trade governing body will not stand for fake advertising and phony announcements. A little of that policy might be used in this country, by the way.

The Columbia which Bert Holcomb will drive for the Chicago-New York record has a magnetic clutch, but it is a different kind from the one the constable has when he nabs the scorcher.

The Japs, notwithstanding the fact that they have had little experience in the motor car game, manage to make much better showings than most people who think they are well up in the business.

When that 25-mile private automobile course has been built and the proposed private automobile road has been finished between New York and Chicago, the rural grafters and the smart city cops will have to seek other fields.

It is almost time for Megargel, Fassett, Whitman, Fetch or some other transcontinental tourist to begin making announcements, although Megargel's tales of hardship during his last winter's trip may have frightened the others off.

Lancia, Cagno and Nazarro visited Chicago last week, but their stay was so short no one had a chance to take them down to the lake and show them the hole made by the explosion or over on State street to let them see the Masonic Temple turn round.

The Glidden cup commission patted nearly everybody on the back who had anything to do with the tour and said nice things about them and their deeds. The manager of the tour, however, was sidetracked in the laudation meeting. Perhaps what the commissioners said about the manager was so complimentary that it was suppressed for fear its publication would carry the manager into fits of joyous weeping.

It was so quiet in New York the past week one could almost hear a pin drop.

Professor Herkomer has been finding out some of the troubles that come with a big tour. He and Tucker ought to get together.

Chicago's power boat show controversy is becoming interesting. Sam Miles ought to be in that fight just for the sake of practice.

Just because there is to be an aeronautical exhibition at the forthcoming show in Grand Central palace is no sign the show is going up.

If the Fiat and Hotchkiss people build factories in this country, wouldn't it indicate that some people think this a fertile field for the sale of motor cars?

C. S. Rolls, winner of the Tourist trophy, and runner-up in the international balloon race, is on his way to this country looking for more laurels. It might be well to tell the Englishman there are no laurels left—Wagner and the White Sox have stripped the bush.

With suits of ouster against it in all sections of the country and with the hour of free alcohol almost at hand, it would seem that the burden of the Standard Oil Co. is too hard to bear. But in the meantime the system goes on selling cheap gasoline at frightful prices, not because it needs the money but because it has become a habit.

Most of foreign competitors in Vanderbilt cup race sail for home; Wagner still in this country and may drive at Ormond; movement on foot to have private course for the next race; proposed site near Washington.

Aftermath of the tourist trophy race in England discloses considerable dissatisfaction over rules in force; automobile club objects to misleading advertisements.

Route for 1907 Herkomer tour tentatively laid out; Professor Herkomer outlines his views on how the next tour should be conducted.

Chicago prepares to wind up its competition season with economy test from Chicago to Cedar Lake, Ind.; thirty-four cars entered.

Commercial cars in Japan taking precedence of pleasure vehicles; motoring conditions in land of mikado described.

Babcock electric is driven from New York to Philadelphia inside 10 hours on one charge by F. A. Babcock, Jr.

Lozier announces he may build three racing cars for international competition in 1908.

Lancia, Nazzaro and Cagno visit Chicago for a day and inspect the stock yards.

Automobile Club of America announces a commercial vehicle test for this fall.

In the way of refreshments the promoters of the Tourist trophy race furnished coffee and Rolls.

Everything may seem quiet on the surface, but underneath all is activity—show time is only some 6 weeks away.

Winter will bring with it a different kind of fuel economy test than the Chicago brand. There won't be any sport about it, either.

The report of a motor car ride given a 105-year-old woman at Beloit, Wis., suggests that it is unfair to say that all old people are behind the times.

The Bostonians made a good deal of fuss because a church was turned into a garage. It might have been a worse case if the church had been turned into a saloon.

The Japs are a little new in the automobile game, as the story in this issue of Motor Age shows; but they have commenced well—they have killed at least one pedestrian.

There is always a lull before a storm. The present lull in matters pertaining to automobile legislation would therefore indicate that ere long there will be something doing among the lawmakers.

Probably Sam Miles is aching for work and so seeks the trade's opinion on the matter of the N. A. A. M. taking charge of future contests. Mr. Miles might talk to Manager Tucker of the Glidden tour and get a few pointers.

Don't forget, gentle reader, that we have had one freezing spell, that another may come without warning, and that now is a pretty good time to invest in wood alcohol or calcium chloride to prevent radiators and cylinders from cracking.

The Vanderbilt cup commission is already looking around for private grounds for a course for next year's race, but had not found it up to the hour of going to press. Why not call in the champion beach finder, Senator Morgan?

The Washington authorities don't propose to distinguish between an owner, a gentleman driver, a chauffeur or a chauffeurine—they're all to be chauffeurs, they're all to be tagged, and a dignified United States senator isn't to be any better than a $6 colored superintendent of a garage washroom. That ought to hit the advocate of the common people in the right spot.

TOUR QUIZ SENT OUT

N. A. A. M. Sends Circulars to Its Members Asking Views on Big Competition Next Year

New York, Oct. 15—Will the National Association of Automobile Manufacturers undertake to run the Glidden tour next year? That's the question going the rounds here since it developed that the contest committee of the N. A. A. M. meets on the 18th, and that in anticipation of this event General Manager Miles has sent a circular to each of the members, asking for views on the proposition. The question asked the members all tend to show that the makers are seriously considering the proposition. The circular reads:

"The executive committee of this association has given serious thought to the subject of a contest in 1907, and is of the opinion that if one is to be held the rules should be considered with great care. The committee earnestly requests an expression of your opinion on any and all phases of the subject, and especially with regard to the questions set forth below. There is to be a meeting of the contest committee to discuss the subject on October 19. In order that we may have the necessary time to properly consider and tabulate the opinions expressed we shall take it as a favor if you will reply immediately.

"1—Do you consider it to be conducive to the best interests of the industry that there shall be a contest, provided satisfactory rules can be prepared?

"2—Assuming that a contest is to be held, should it be conducted by this association or by some amateur organization?

"3—Should it be designed to break down cars under abnormal conditions, until only one remains, for the purpose of determining a winner of a single prize; or, should the purpose of the contest be to demonstrate the excellence of as large a number of cars as possible under conditions of sufficient severity to thoroughly satisfy the public?

"4—Should all cars compete in the same class, or should there be a number of classes, and if the latter, how many?

"5—If a contest be divided into classes, what method of classification would you suggest?

"6—Should the same amount of work be required of each class, or shall the higher-priced cars be required to undergo a more severe test than those of the cheaper class?

"7—Should a contest take place over a long route, from points widely separated, or from a central point, making runs out and back daily?

"8—Should a speed test form a part of the contest?

"9—Should the consumption of gasoline and lubricants be taken into consideration?

"10—Should a hill-climbing test form a part of the contest?

"11—Should the entries be confined to manufacturers, or should the contest be open to all operators?

"12—Should the contest be confined to cars as regularly catalogued?

"13—Should work upon cars, during the contest, be permitted only by the operator and one mechanic, or would you recommend greater latitude; and if so, to what extent?

"14—Should it be required that replacements and repairs be made from parts carried on the cars; and if so, to what extent shall the supply be limited?

"15—What total distance would you recommend for each class of cars? What distance per day?

"16—Should any limit be placed upon the number of cars that may be entered by a manufacturer?

"If you are unable to reply to each question at length, please refer to the number of the question, or write your replies opposite them and return this letter. You are earnestly requested to reply promptly, so that all replies may be received before October 18."

ITALIANS VISIT CHICAGO

Chicago, Oct. 12—Lancia, Cagno and Nazzaro, the three Italians who drove in the Vanderbilt, accompanied by Ernesto Vaccarosi, managing director of the Michelin tire forces, and Marius Bruno, a director of the Fiat company, paid a flying visit to Chicago yesterday for the purpose of getting a peep at the stock yards and taking a whirl around the boulevards here. Daniel J. Canary, local representative of the Michelin, came with the party from New York. The visitors were met at the Lake Shore depot by N. H. Van Sicklen, who took the party in his Apperson to Packingtown, which was thoroughly explored by the foreigners, after which they enjoyed a trip around the south side boulevards. They left at 5 o'clock for Buffalo, where they intended seeing Niagara Falls. During their stay here Mr. Bruno intimated that it was not beyond the range of possibilities that the Fiat people would erect a factory in this country and that if they did Lancia would be in charge.

HOTCHKISS A PROBABILITY

Buffalo, N. Y., Oct. 15—L. J. Benet, general manager of the Hotchkiss Gun Co., of St. Denis, France; J. J. Mann, general manager of the Hotchkiss Automobile Co., of the same place, and A. M. Archer, of New York, American representative of the latter concern, visited Buffalo recently as guests of E. R. Thomas. The object of the visit was to make arrangements for the building of Hotchkiss automobiles in America, so as to avoid the duty of 45 per cent ad valorem. They may buy a site and erect a plant in Buffalo or elsewhere or they may pay some American company a royalty.

WORKS ON NEW PLANT

De Luxe Motor Car Co. Hurrying Alterations on Detroit Factory —Plans for Next Season

Detroit, Oct. 15—These are busy times around the new plant of the De Luxe Motor Car Co., at the corner of Clark and West Jefferson avenues. It is just a week since the new management took hold of the Detroit plant and already it has prepared for marked changes. The plant, which was a new one, is to have several very important alterations. The present plant has 9½ acres of ground and the three large buildings with the smaller ones have a floor space of a trifle more than 2 acres. To these are to be added another building which will add 10,000 square feet to the working space of the big plant. This building is to be built immediately and before snow flies will be in operation. The plans have already been drawn and a big force of men is clearing the ground for work to begin.

About 300 workmen are now engaged and in another fortnight nearly 500 experts, many of whom have been drawn from Toledo and other automobile factories all over the country, will be working on the new Car De Luxe. By January 1 800 will be employed. If it is decided to increase the output to more than 200 machines, and this is being considered, this force will be largely increased. The first 200 cars will be out before June 1, it is said. The first cars are now being completed and the work on the machinery for the December show in New York is about finished. The company drew first choice of positions both at the New York show and the Chicago show.

Frank S. Davis will be the engineer in charge. John A. Herzog will have entire charge of the chassis and Fred A. Meeks will assist both. All of these men were designers of the Pope-Toledo people. The superintendent of the new plant is John A. Locher, also a Pope Motor Car Co. man. A machinery equipment valued at a quarter of a million dollars will be in use when the full plant is running. Everything that is newest and most economical in manufacturing is being secured and the new plant is being so laid out that economy of time will play a very important feature. From the machine shop to the various assembling rooms the parts will go and finally will be gathered for assemblage in the chassis assembling room. Thence they go to the final assembling room. Meantime from the third floor the rough body will have been started down to the second floor, where, as the various stages are reached, it will progress rapidly along the second floor in the same direction as the mechanical portions of the car, finally arriving at the same point, where body and chassis will be united. Painting and polishing will then be fin-

ished and the completed car will be ready for shipment to the agents.

The executive force of the new company is composed of well known men. F. M. Keeton was for many years the successful general sales agent of the Pope-Toledo people, leaving that organization last summer to form the De Luxe company. George M. Verity, who is manager of the company with Mr. Keeton, is the president of the American Rolling Mills Co., of Middletown, O. In charge of the department of publicity is H. Coy Glidden, a publisher of many years' experience both in the daily newspaper field, where he was one of the first, if not the first automobile editor, and also in the magazine field.

The impression which has gotten abroad that the C. H. Blomstrom Motor Co. is to be discontinued is entirely erroneous. The old company is to be continued under new management and the output of Queen cars will be continued. Besides the model K the company is preparing to put out another car, a four-cylinder 20-horsepower runabout car, three of which have already been built. Mr. Blomstrom is no longer connected with the company, but the plant at River street and Clark avenues is running with 250 workmen.

TWO TRADE DEALS

Detroit, Mich., Oct. 14—The Michigan Screw Co. has been organized with a capital stock of $100,000, and will begin the manufacture here of machine parts for automobiles, and also gas engines. R. E. Olds is the president of the concern; M. R. Porter, secretary and treasurer; Hugo Lumberg, of the Detroit Screw Co., will act as manager, and W. M. Roberts, of the same concern, will be the sales manager. The Blood Bros. Automobile & Machine Co., at Kalamazoo, Mich., has changed its name to the Blood Brothers Machine Co. This concern when first organized manufactured complete automobiles, but afterward developed a universal joint that proved so popular that Blood Brothers have had to drop all other branches of their business and devote their entire time and energy to the making of these joints and steering gear, which they also manufacture. During the past 12 months they have constantly been adding machinery to their plant, until the capacity at the present time is about four times as much as it was a year ago.

LOZIER TO BUILD RACERS

New York, Oct. 15—From the Lozier works at Plattsburg, N. Y., comes the assertion that it is the intention of the company to build three racing cars for the 1908 season. It is also the intention to build a track at Plattsburg on the shores of Lake Champlain. This private course will be about 3½ miles in circumference and it will be used to test the possibilities of the new racers, the construction of which depends upon whether or not the regular output will not be interfered with.

ECONOMY RUN ENDS IT

Competition Season in Chicago Closes with Test to Cedar Lake, Ind.—Thirty-Four Entrants

Chicago, Oct. 17—With the economy run to Cedar Lake, Ind., tomorrow the local competition season will come to an end after 6 months of unprecedented activity on the part of the Chicago Automobile Trade Association, assisted by the Chicago Motor Club and the Chicago Automobile Club. Before this Chicago has always been on the books as a dead town so far as the sport side of the game was concerned. Outside of one or two race meets on holidays there had been nothing doing until the dealers took matters in their own hands and with Joseph F. Gunther at the wheel promoted first an orphans' day run in which ninety-eight cars took part, then a reliability run over the Elgin-Aurora century course in which eighty-six cars took part, and last month put on a hill-climb at Algonquin, Ill., which attracted fifty entries. The hill-climb was a novelty in that it was a double climb, a standing start in the morning and a flying in the afternoon, two hills being used. Then a handicap system was used for the first time in America, the formula being weight multiplied by time and divided by cylinder capacity.

The economy run tomorow is also on a handicap basis and a little out of the ordinary in that a car is asked to travel a given distance rather than see how far it can go on a stipulated quantity of gasoline. The formula to be employed is weight of car divided by the quantity of gasoline consumed, different from others which multiplied the weight by the gasoline instead of dividing. Thirty-four cars have been nominated for the local affair, representing twenty-six different makes. Contrary to the usual rule, runabouts are few, only four—a Jewell, Reo, Cadillac and Stoddard-Dayton—having been nominated. The contestants have been numbered acording to horsepower, which makes No. 1 the Jewell, 6 horsepower, named by Brick P. Kuhn. The competition also has attracted six different makes which have not taken part in previous local competitions this year—the Berliet, Dorris, Frayer-Miller, Franklin, Packard and Jewell. In addition the Reo, Cadillac, Stoddard-Dayton, Premier, Rambler, Jackson, Buick, Aerocar, Packard, Autocar, Queen, Pierce, Haynes, Oldsmobile, Simplex, National, Silent Knight, Stearns and Apperson are represented.

The contest will start at 1 o'clock tomorrow afternoon from in front of the New Southern hotel at the corner of Thirteenth street and Michigan avenue, where the Chicago Motor Club has its headquarters. The tanks will be filled chock full before the start and again refilled at Cedar Lake, which will give the quantity of fuel consumed. It will be necessary to weigh in every car, of course, but this operation will not take place in Chicago, arrangements having been made to use the scales at Crown Point, in order to avoid needless confusion at the start. The cars will leave at 2-minute intervals in order that the dust nuisance be avoided as much as possible. At Cedar Lake tomorrow night there will be a banquet for the contestants, followed by a dance. George G. Greenburg, of the Chicago Motor Club, will officiate as referee.

GREAT FEAT BY ELECTRIC

New York, Oct. 14—A Babcock electric runabout, fully equipped with fenders and top, piloted by F. A. Babcock, Jr., and with C. Arthur Benjamin as passenger, both of Buffalo, completed in Philadelphia yesterday one of the most remarkable feats in the history of electric automobile locomotion. The run between the Wyckoff, Church & Patridge garage, at Broadway and Fifty-fifth street, and the Bellevue-Stratford hotel, at Broad and Chestnut streets, Philadelphia, was made on a single charge of the batteries. Odometers on two of the escorting gasoline cars made the distance 103½ miles. In the course of the run, however, two steep hills, each about a half a mile in length, were encountered up which the Babcock was towed, its power having been so reduced by the distance and bad going through the mud south of Trenton and in Burlington as to be inadequate to get the car up the stiff grade over none too good going. The car started from the garage at 8:32 a. m. and at 9:41 had crossed the ferry to Jersey City and was en route to Newark, 10 miles, which was reached at 10:01 a. m. New Brunswick, 33 miles, was reached at 12:05 p. m.; Trenton, 63 miles, at 2:55 p. m.; Burlington, 83 miles, at 4:45 p. m., and Philadelphia, 103½ miles, at 7:00 p. m. The car's electric lights, furnished by its own power, were in use from dark, at around 5:45 p. m., to the end of the run. South of Trenton the going was muddy and very bad. At Belair, 5 miles from Camden, the first insurmountable hill was encountered and the car was towed. Further on, just out of Camden, there was another hill that necessitated the car being towed again.

POPE AGENCY IN NEW YORK

New York, Oct. 16—The Pope Mfg. Co. will change its New York branch into an agency. A. G. Southworth, its Brooklyn agent, has secured the New York territory and will place C. W. Spencer, at present assistant manager of the present New York branch, in charge. The big Pope garage on upper Broadway will continue to be the selling headquarters, though Mr. Southworth will divide it into two establishments, subletting the one not used by himself. It is expected that the Boston branch will also be turned into an agency.

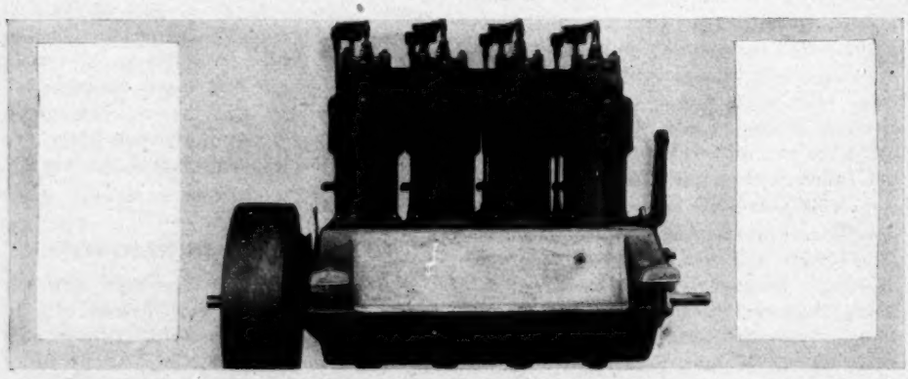
AUTOMOBILE DEVELOPMENTS

The MITCHELL

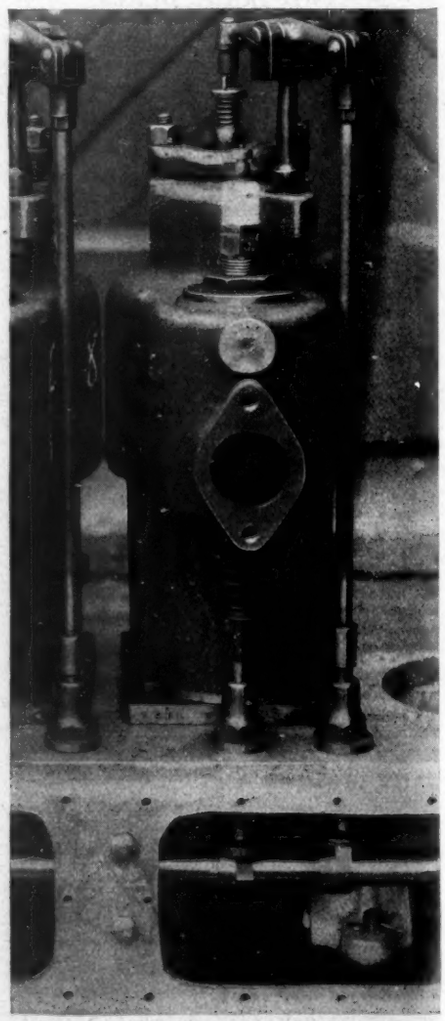
LEFT HAND CONTROLS SPARK, RIGHT GOVERNS THROTTLE

OF THE much-talked-of cars of the present season the Mitchell runabout came in for a large share of praise, primarily because it was one of the first cars with four cylinders, sliding gear transmission and shaft drive to carry the thousand-dollar mark, and because in several track events it defeated cars of much higher power and held the record for the 50-mile mark. In all sporting events in the east and middle west it was a familiar entrant and invariably was among those to be reckoned on. Because of its reputation the Mitchell Motor Car Co., of Racine, Wis., is staking most of its 1907 energy on bringing out in large quantities a runabout of practically the same lines as that of 1906, being, in short, the present car with next-year changes. Of the 1,000-car mark set for the approaching season, 600 will be runabouts and the remainder touring cars, and of this number the maker already claims orders for over 90 per cent have been received. The building of 1,000 cars in one season calls for large factory space and to meet this demand the company is now erecting a machine shop 130 by 230 feet and a painting and shipping room of similar size. Machinery of approved make is being received weekly, additional help is being added and in general the company is already well entered upon the production of next year's cars.

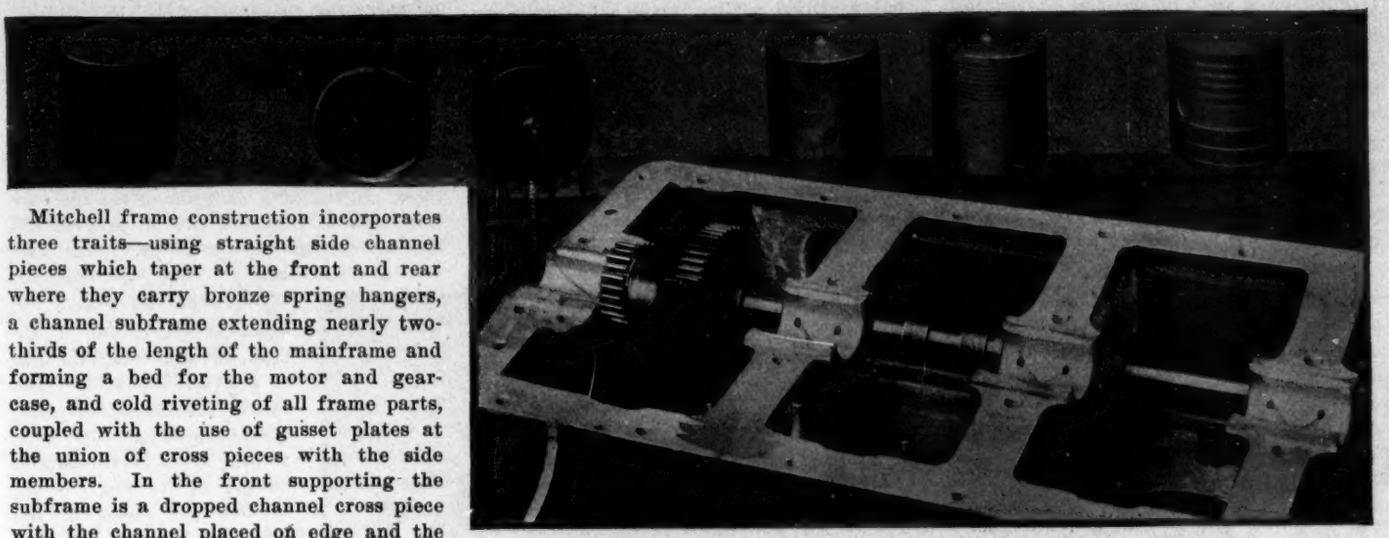
Compared with the present car it is interesting to take the Mitchell runabout for 1907 as a fair criterion of what the buyer for next year will get for the same money as he expended this season. The possible speed limit is increased 5 miles an hour, now standing at 45. Four inches have been added to the wheelbase, bringing it up to 90. The motor this year rated at 14-18-horsepower is placed at 16-18-horsepower, the extra power coming from an increase of ¼ inch in the bore, now being 3¾ inches, whereas the stroke remains at 4 inches. Springs in front and rear are increased in length 2 inches, 40 inches front and rear, with six leaves in front and an extra one behind. Instead of carrying the McCord oiler on the dash, it rests on the right side of the engine beneath the bonnet. As before, the crankshaft revolves on five bearings, but now the second and fourth bearing supports instead of being inverted pedestals supported from the top of the case are pedestals stiffened by arms connecting the tops of these pedestals with the sides of the case, the same as in the remaining three bearings. Both transmission gears and shafts are made heavier. The pedal brake acting on the drive shaft, immediately in rear of the transmission, is replaced by a pair of external band brakes acting on drums on the back wheels—the emergency brakes remaining—internal expanding shoes operating within the same drums. The Brown-Lipe steering gear is replaced by one of Warner make. Ball bearings carry the front road wheels, all other bearings throughout the machine remaining as at present. In place of the tubular front axle, one of I-section will be fitted, and a new type of floating rear axle with nickel steel driving shafts will replace the present one. Added to these are the making of the body 1 inch wider, using larger fenders and wider running boards and making the back of the seat one easy curve from side to side instead of two curves, one for each seat, as is now the style. Not to be passed in this enumeration is the making of the metal dash in one piece and the changing of the shifting device of the gearset by carrying the shift rod over the top and center of the case instead of at the side. With all these changes has come an increase of 100 pounds in weight, the scales now recording 1,600 pounds for a complete car.



RIGHT SIDE OF MITCHELL MOTOR, WITH SEPARATELY CAST CYLINDERS



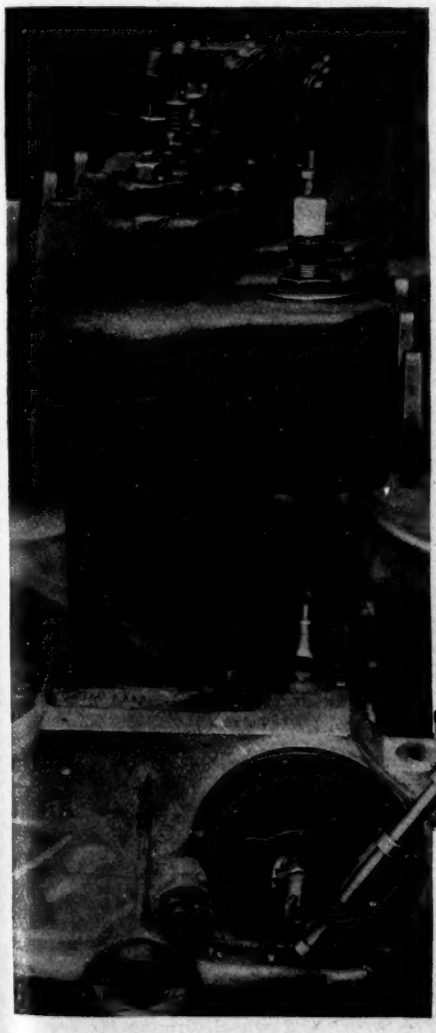
THE MITCHELL VALVE ACTION



Six Stages in Piston Finish

Inverted Top Half of Crankcase

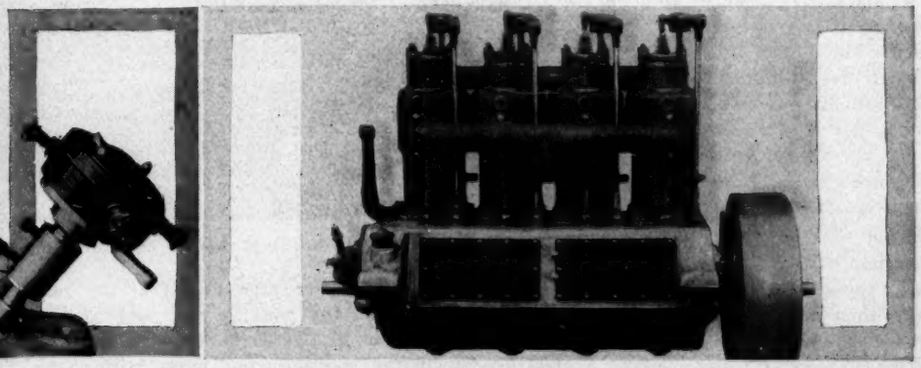
Mitchell frame construction incorporates three traits—using straight side channel pieces which taper at the front and rear where they carry bronze spring hangers, a channel subframe extending nearly two-thirds of the length of the mainframe and forming a bed for the motor and gear-case, and cold riveting of all frame parts, coupled with the use of gusset plates at the union of cross pieces with the side members. In the front supporting the subframe is a dropped channel cross piece with the channel placed on edge and the ends of the subframe pieces resting on the bottom channel side, whereas at the rear end the subframe channels are carried in stirrups beneath the channel cross piece of the mainframe. The channel subframe pieces are mounted with the open face of the channel facing the ground. In shackling the springs in place common practice is pursued by mounting the forward pair beneath the frame pieces and carrying the rear pair well outside of the frame.



Mitchell Commutator Drive

Most originality awaits the observer in the motor, in which all cylinders are separate castings, characterized by having the exhaust valves in the center of the head and opened by rocker arm movement and the intakes in ports on the left side and opened by direct lift from the same camshaft which actuates the exhausts. Each cylinder is an integral casting, the head, valve port, water jacket and wall proper being incorporated in one. In passing it is not amiss to mention the sixteen processes in the finishing of one of these cylinders from the time it reaches the factory in the rough form. At first the four core holes are drilled out; next these are tapped, or threaded, followed by the third process, that of the first water test, in which hose is connected with the jacket and a water pressure of 40 pounds to the square inch used within the jacket. Providing a casting stands this test it is ready for the fourth step, that of boring on a special machine, at which time the opening for the exhaust valve in the head is bored to size. Step five is another water test of the jacket, under the same pressure as before, to make sure that after the boring the cylinder wall space is of competent strength and texture. The sixth work is that of drilling the intake valve hole, shaping the valve seat and putting the thread in for the valve cap. Following is the drilling of the hole for the intake valve stem, then comes a third water test, with the work of drilling the hole for the rocker arm fulcrum in the cylinder head a close follower. Process ten is drilling a couple of screw holes to retain the exhaust valve cage, eleven is drilling the four holes in the base flange for the studs which secure the casting to the top of the crankcase, twelve is putting the cylinder on the crankcase, thirteen milling the casting for the fitting of the intake and exhaust pipes, fourteen drilling a couple of screw holes to hold these pipes to the cylinder, fifteen roughing off the inside of the cylinder head all projections that might cause preignition, and sixteen is a final water test.

Something of a contradiction meets the eye in making the top part of the crankcase of an aluminum alloy and using a cast iron bottom portion, which does the work simply of an oil pan. From the aluminum top are carried the five bearings of the crankshaft, each supported from the top sides of the case and carrying bushing of Phoenix babbitt. Notice is directed to the enclosing of the half-time gear, together with the gear on the crankshaft and an idler in the front end of the crankcase, the group of three appearing in the illustration at the head of the second page. The large half-time gear on the end of the camshaft rests practically in the hollow supporting arm of the motor, the idler is

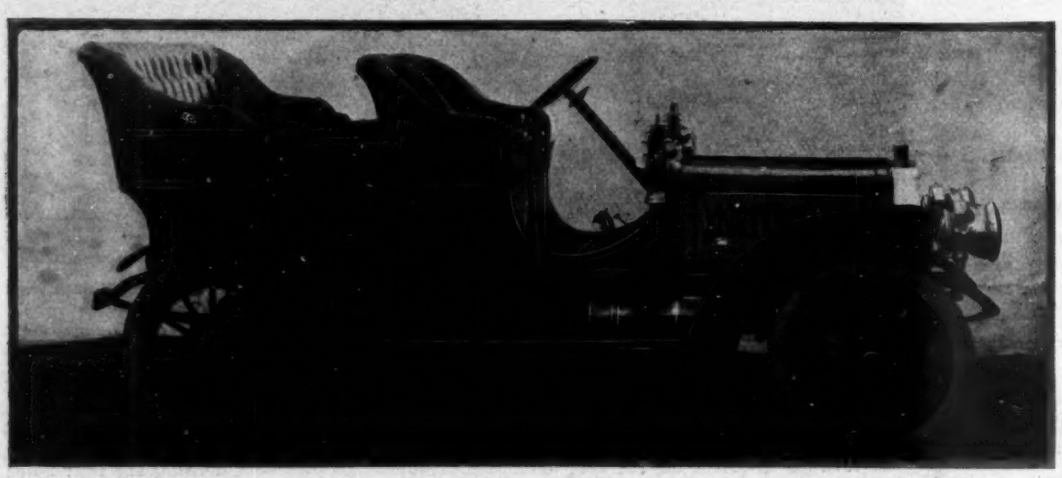


One Camshaft Operates Intakes and Exhaust in Mitchell Motors

carried on a stud in the end of the case, and the small top pinion fits over the crankshaft. All three revolve constantly in the oil splash within the case. The camshaft is carried on three bronze bearings and has its cams pinned in position.

The Mitchell cylinder is somewhat irregular in shape. On the left side is a normal intake valve port, water jacketed on all sides, with the intake valve in the base, and above it a threaded cap with a central hole in it for receiving the spark plug. On the cylinder head is the water jacketed exhaust valve port, with the opening for connecting the exhaust pipe on the right. The exhaust valve cage is a casting having a ground fit within the valve port and held therein by a couple of studs with nuts. On the left side of the exhaust port is a slight expansion, forming a seating for the fulcrum post, which with its yoked top forms a support for the center of the exhaust valve rocker arm. The fulcrum pillar threads into its seating and is further secured by a nut on its lower end, where it projects beneath its seating. A hardened pin held in place by locknut and cotterpin carries the rocker arm which, at the end which bears on the top of the exhaust valve stem, has a hardened stud with a convex end for resting on the head of the valve stem. The opposite end of the rocker has a pivotal connection with a yoked ending, threaded to the top of the lifter rod, this yoked ending being further secured by a locknut beneath it. These liftrods work through bronze guides, or sleeves, in the top of the crankcase and at their lower ends rest on what appears to be the top of the stem of an inverted poppet valve, the valve head reposing on the cam. This construction, rather than rollers for bearing on the cams, is common both at home and abroad, but it should not be overlooked that while this lifter foot—for it is really such—is shown in the illustration with a flat bottom where it rests on the cam, yet in the new cars this bottom is quite convex and the foot is free to revolve in the bronze guide in the top of the crankcase. Intake valves are removed exactly as in any other car with valves in side ports, the work being limited to removing the cap above the valve, loosening the valve spring and lifting out the valve, yet in the case of the exhaust the rocker arm pivot is first removed after which the two nuts holding the cage in position are taken off, the cage then being free to be lifted out. Both intake and exhaust manifolds are malleable castings, formed in one piece, the one a large horizontal pipe with a union at its center for the carbureter and the exhaust pipe of similar shape, except that the muffler pipe unites at its rear end. Asbestos packing is used in all unions and Holley carbureters are fitted.

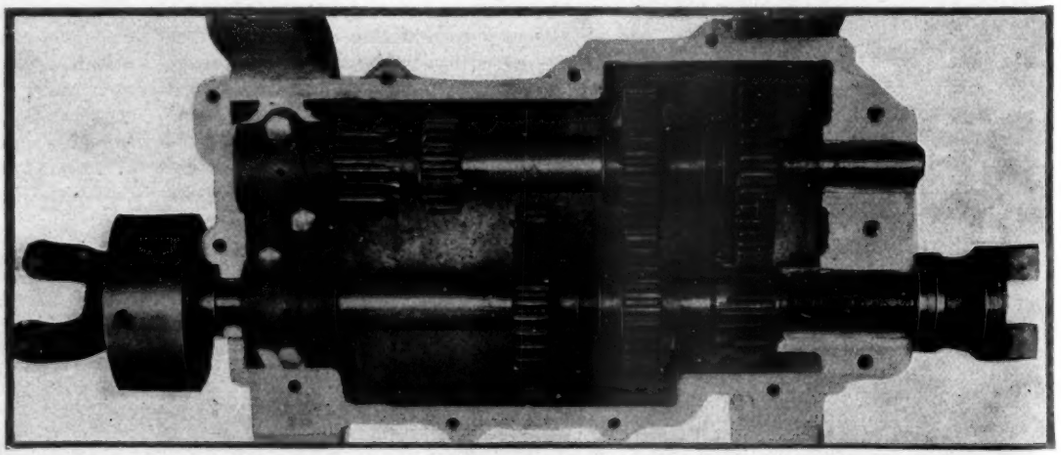
Of the reciprocating parts within the cylinders—the pistons and connecting rods—typical construction rules. In finishing the pistons eight steps are needed, indicated in the illustration showing the six castings at the top of the previous page. First is the rough casting. In the second the interior at the front is shaped out so as to attach to the mandrel and the centering marks on the wrist pin bosses are cut. The third view shows how the cylinder is centered by the small hole in the center of the head, after which it is ready to be placed on the machine for roughing the sides and top, as shown in the fourth view. In the fifth the grooves for the four compression rings and two oil grooves are cut and a slight relief in the lower half made. Then the hole for the wristpin, as well as the hole for the screw in the boss for anchoring the pin in position, are made. The piston is then complete. The connecting rod is a forging of H cross section, having at its top end an eyehole for receiving the one-piece bronze bushing for the wrist pin and at the lower end is hinged at one side and held at the other by studs with nuts and cotterpins. The wristpin is of hardened hollow steel, measures ⅞-inch in diameter and has a setscrew for anchoring it in the piston boss at one side only.



MITCHELL MODEL F, 30-35-HORSEPOWER TOURING CAR

In cooling a honeycomb radiator shares the work with a gear pump carried on the front of the camshaft, together with a Mitchell fan, belt-driven from the front end of the crankshaft. Ignition is by jump spark with current taken from double sets of dry cells, high tensioned by a four-part Splitdorf coil on the dash and distributed to the four cylinders through a commutator. The commutator shaft is short and mounted at 45 degrees to the vertical, its drive coming from the front end of the camshaft through spiral gears. The task of oiling the motor devolves on an eight-feed McCord oiler, four of which feeds pass direct to the cylinder, one to the crankcase, one to the clutch and two to the crankshaft bearings.

In the conveying of the motor power to the back axle the clutch is of simple cone type, with the flywheel forming the female



THE BRAKE WHEEL AT THE LEFT IS NOT USED IN 1907 CARS

member and the aluminum cone casting with a 10-degree angle covered with 4/16 inch heavy leather riveted in position, forming the male part. The cone diameter is 14 inches and its face width 1¾ inch. To ease engagement, placed radially in the rim of the cone is a series of three coil springs, 120 degrees from each other, which bear outward on the leather covering so that in engagement the leather over these springs first engages and as the tension of the springs is overcome the clutch enters into complete engagement. This cone part is carried on a sliding collar which is forced toward the flywheel by a coil spring surrounding the clutch shaft and bearing upon the collar. The only interconnection with the clutch is that with both regular and emergency brakes, the application of either throwing it out. The flywheel is made with a taper fit on the crankshaft and is further secured by a couple of keys. The Mitchell sliding gear affords three speeds ahead, with one reverse, the direct drive on third speed having but the mainshaft in use, the countershaft with its gears being thrown out of mesh by a yoke with interconnection to the shifting rod. As illustrated the Mitchell gearcase has the main and countershaft supported in the lower half of the case, which is an iron casting, but an aluminum casting forms the top half. The top of the aluminum casting is one large sheet iron inspection cap, giving ready access and light construction. Plain bearings with babbitt lining carry all of the shafts. The pair of sliding gears is on the main shaft. Gears on the countershaft are keyed in position with the keys pinned in place.

Besides the runabout the Mitchell company has for the coming season two models of passenger touring cars, one model F, 30-35-horsepower with cylinder bore and stroke 4½ and 5 inches, which machine will be made in large numbers. The story of this car is that of the runabout—its motor is the same design but larger, so is its clutch, so the gearset, the shaft drive and the rear axle and brakes. As a touring car it possesses a 108-inch wheelbase, 32-inch wheels with 4-inch detachable tires, and weighs a couple of thousand pounds. This model is considerably larger than the biggest Mitchell touring vehicle built this season, having higher power and larger parts in general. It is geared to a speed of 50 miles an hour, the gear ratio being three to one, as in the runabout. The third model, styled D, is the same as the present model D, with 24-30-horsepower motor, bore 4¼ inches, stroke 5 inches, 100-inch wheelbase, 32 by 4-inch tires, geared to 45 miles an hour and weighing 2,200 pounds. The general color is Mitchell blue, with yellow gear.

MITCHELL RUNABOUT READY FOR 1907

Motor Books

"Self-Propelled Vehicles," a practical, illustrated treatise on motor cars, by J. E. Homans, has been issued in its fifth edition by the press of Theo. Audel & Co., 63 Fifth avenue, New York. Like the previous volumes it is comprehensive to the letter, its 582 pages of reading matter and illustrations covering the entire gamut of motoring. Fifty-one chapters contain the story. Samples of these treat on: Self-propelled vehicle history, compensating devices, power transmission, steering, springs, types of tires, theory of heat engines, four-part and two-part gasoline motors, rules of compression and expansion, engine efficiency, carburation, air and water cooling, electricity, flash steam generators, compound steam engines, ball and roller bearings, lubrication, storage batteries, motor cycles, governing gasoline motors, care of gasoline vehicles and numerous other topics. In all, over 500 illustrations are required, many of which are half-tones from photographs, and others are simplified mechanical drawings. The many subjects are particularly exhaustively treated. In chapter eight, treating of motor car road wheels, wheel construction and design are given ten pages. Eight pages tell the story of the make and theory of solid rubber tires, and twenty-five do similar service for pneumatics. Twelve pages on the theory of heat engines are filled with indicator diagrams, explanations, the laws of temperature and pressure and a study of the complete cycle. Twenty-seven pages are given over to carburation. The story of one chapter is that of all the others.

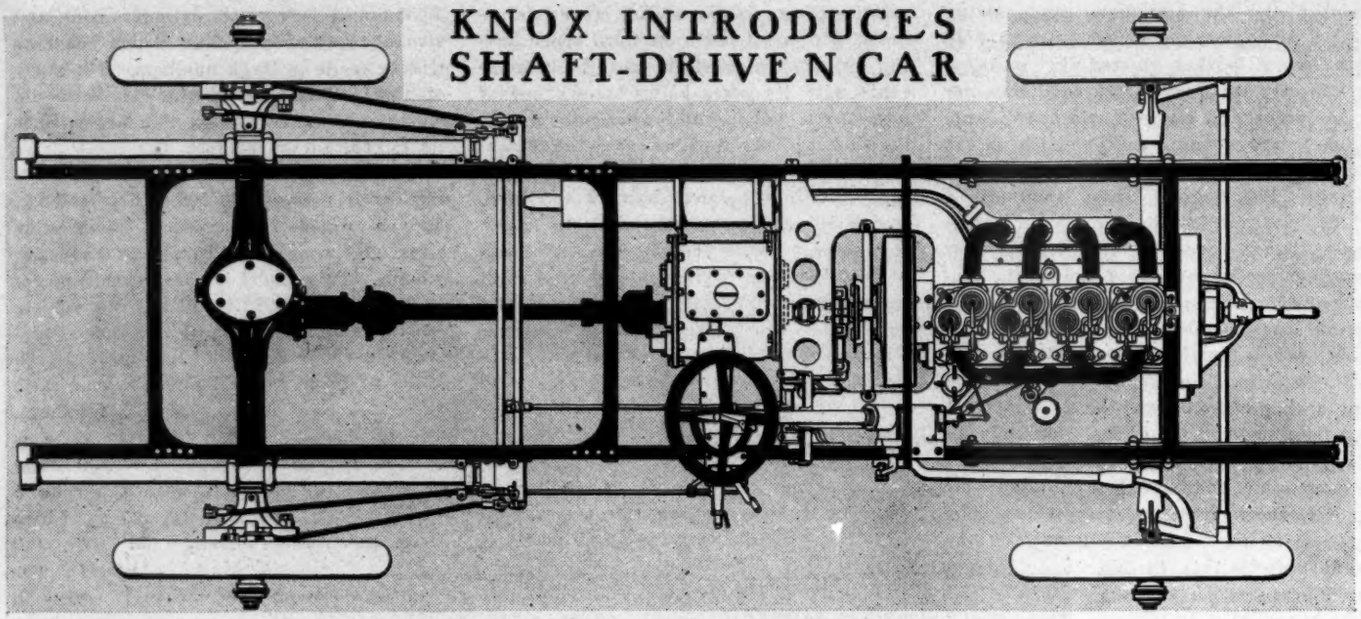
In its "No. 1" catalogue the Truscott Boat and Auto Supply Co., St. Joseph, Mich., presents a 120-page book filled with illustrations, descriptions and prices of Solar headlights, launch lights, tail lamps and generators, electric lighting novelties, lamp brackets, horns, goggles, odometers, clocks, motor car clothing, caps, tires and tire specialties, lubricants, soaps, oils, water buckets, monograms, coils and batteries, switches, plugs, ammeters, carbureters, chains, wrenches, tools, boat hooks, oar locks, paddles, and, in short, everything in the motor car and motor boat specialty line.

Without doubt the finest book on fur garments for motoring so far issued in connection with the motor car industry in America is that now being circulated by Saks & Co., New York. The book, 10 inches deep and 6 inches wide, has a brown paper cover corded in place and contains eighty-five pages. The illustrations are full page and in four colors on heavily-enameled pages, the order of pages being two pages of reading matter followed by two pages of illustrations, the reading pages facing the illustrations. The first twenty-eight illustrations show fur coats and caps of full and three-quarter lengths, shown alternately for men and women. Opposite each is a short descriptive paragraph with price list. Following this are six pages of fur lap robes, with as many more on various styles of fur caps. Lastly come gauntlets, fur boots and fur robes. The value of the many illustrations is in their size and showing the natural colors of the furs. All coats and other articles are shown on models.

H. H. Franklin Mfg. Co. is first to offer its complete 1907 trade catalogue, illustrative of its many Franklin styles for the approaching season. The booklet, fashioned largely after the present catalogue, is of large size, with profuse illustrations, showing limousine, touring cars in all shapes, runabouts, motors, clutches, control parts, and finishing with a tabulated page of specifications.

The Reliance Motor Car Co., Detroit, Mich., in its initial catalogue on motor trucks, uses 9 by 12-inch size with showy cardboard cover in green, with truck in foreground in bright red. The illustrations are very large, showing the motor from right, top, bottom, assembly and crankshaft; also the gearset, together and assembled, and full page views of trucks with different bodies.

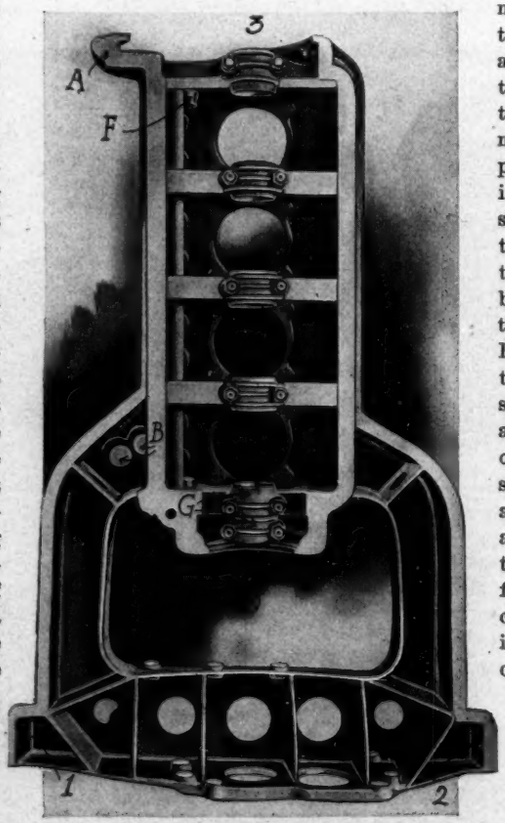
KNOX INTRODUCES SHAFT-DRIVEN CAR



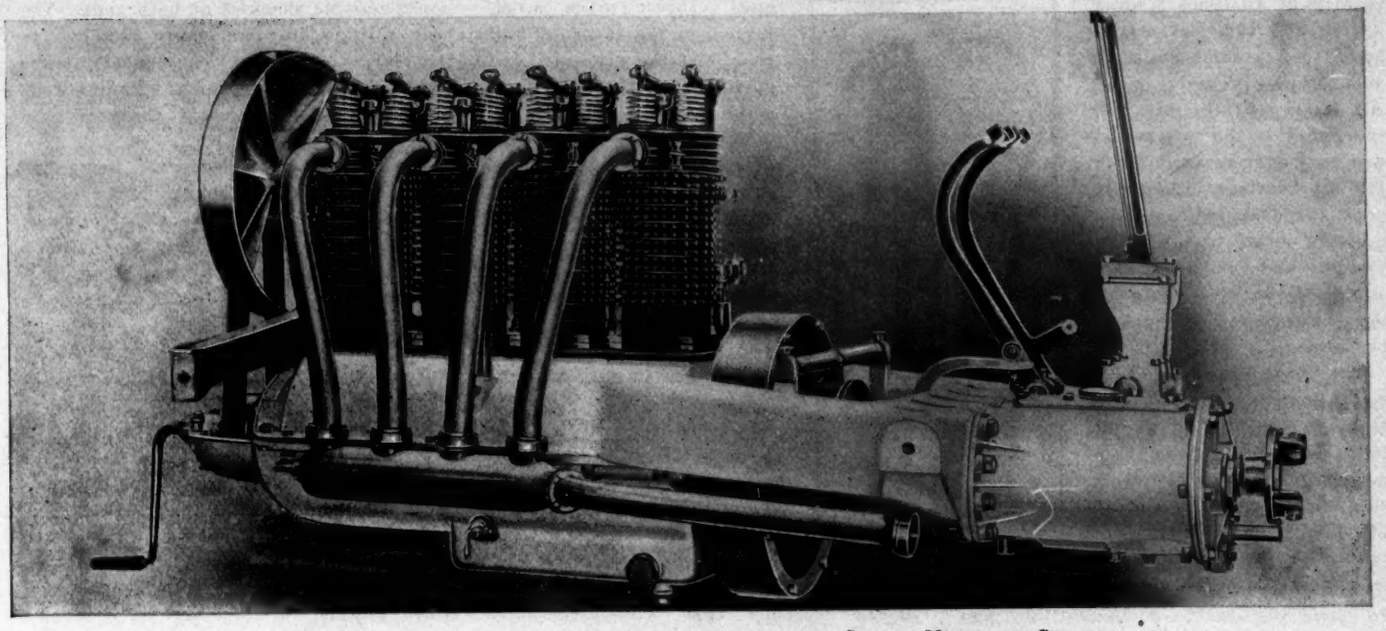
CHASSIS OF KNOX SHAFT-DRIVEN CAR WITH THREE-POINT SUSPENSION THROUGHOUT

ADD one more name to the list of American motor car builders manufacturing shaft-driven cars! That name is the Knox Automobile Co., Springfield, Mass. All Knox cars for next season will not be shaft-driven, only one model, termed H, a 25-30-horsepower touring car will be so featured. The big 40-50-horsepower machine, however, will still use double chain drive and the smaller machines with horizontal cylinders continuing with the single-chain system. One by one car builders who have pinned their faith to side chains for final transmission are introducing shaft-propelled machines. Especially is this the case where two sizes of cars are manufactured, one of high power and the other medium powered, the former being chain-driven and the latter shaft. Why makers do this is unknown to all but to themselves. One builder who brought out a shaft-drive machine this season gave as his reason that of following the line of least resistance. Many buyers want shaft drive, then why not give it to them? The Knox drive shaft comes into the motor realm not clothed with untried universal joints, or differential construction, but in simple shaft and bevel differential garb. At the forward end the shaft carries a dust-proof universal joint where it unites with the end of the gearset shaft, and another joint where connection is made with the front end of the pinion shaft at the differential housing. The differential housing is a three-part casing, comprising two funnel-shaped pieces, into the smaller ends of which are attached the axle tubing and a top cap for facilitating inspections. The opposing faces of the funnel parts are bolted together and in one of these pieces is an enlargement for carrying the pinion shaft. Four Hyatt roller bearings support the driveshafts of the axle and ball races care for end thrust. Two races of annular ball bearings support the pinion shaft. The differential has all gears formed from hardened steel, and made with four pitch and a reduction of three to one, three and one-half to one, or four to one, according to the desires of the buyer or the nature of the roads in the buyer's locality.

Following close upon the heels of the shaft drive is the carrying of the motor and gearcase on the same aluminum casting, which casting forms the top part of the crankcase, and mounting this casting or bed piece directly on the main frame at three points. To understand this, glance at the peculiar-shaped casting, shown on this page, which plays the three-fold role of crankcase and motor and gearcase support. The narrowed upper half is a motor bed, the spreading arms C at the lower end of this form an opening D which contains the flywheel and clutch, and to the long bottom end is bolted the front end of the gearcase. The reader sees the bottom side of this casting in the illustration, which view tells how the five bearings of the crankshaft are carried on it, the four circular holes receiving the lower ends of the cylinders. At points 1 and 2 this casting rests on the side pieces of the chassis frame and at point 3 is a trunnion support carried on a crosspiece of the main frame, this single support being at the front end of the motor. To remove the casting but two side bolts and the trunnion pin have to be taken out. The manifold uses of this casting and its completeness appear even in a cursory examination. At the upper end is an expansion A forming one-half of the housing for the half-time gear, and not shown at the top center is a continuation forming a bracket for the starting crank. E marks the opening for the front camshaft bearing, B is the opening for the vertical commutator and oil pump shafts, CC are the spreading arms for encircling the flywheel, and in the base of the case is the central opening through which passes the clutch shaft to the gearcase. In the illustration at the top of next page appears how tightly and compactly the gearcase attaches to the end of this bed, the end of the bed forming a part of the front end of the case. Thus motor and gearset are to all intents and purposes one casting carried on three points, yet this support is such that should the gearcase have to be removed it can be disconnected from the casting bed without altering the motor and clutch, and should the clutch require removal it, too, can be taken out without removing the gear-



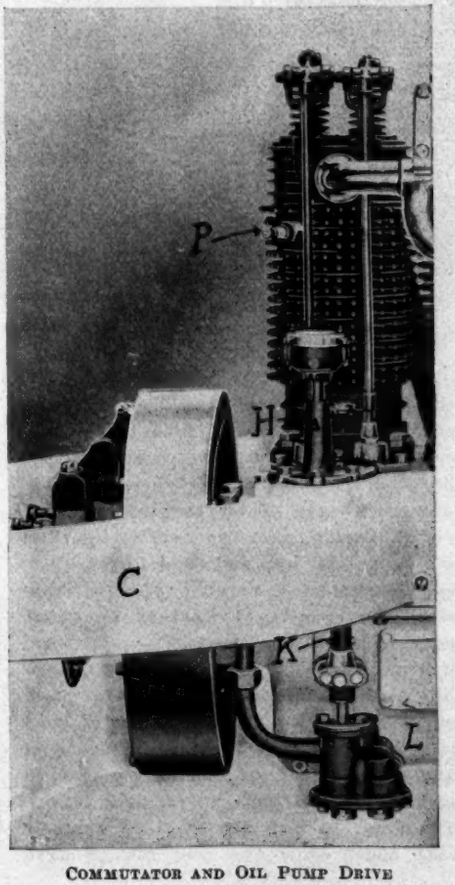
KNOX THREE-POINT SUPPORT



ONE ALUMINUM CASTING, WITH THREE-POINT SUSPENSION, CARRIES MOTOR AND GEARSET

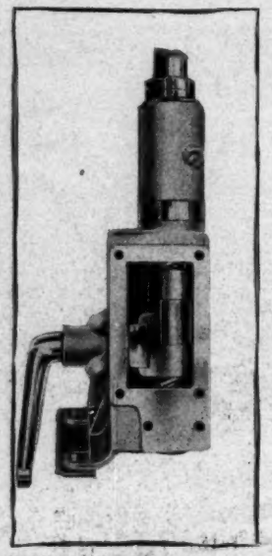
case or taking off the motor. A coupling between the clutch and gearcase affords this facility of removal. Should the engine have to be taken out it would mean a taking out of the support bed, as it forms the top of the crankcase, and to it the lower part of the crankcase, serving as an oil pan, is secured.

Apart from this most interesting crankcase, motor bed and gearcase support the Knox motor has nearly every mark of the four-cylinder type introduced a year ago. The cylinders, separate castings, have the walls cooled by the Knox threaded pin method, with every two rows of pins separated by a circular flange, and the cylinder heads which carry the valves cooled by circular integral flanges. On the bottom of the cylinder walls beneath the pin area is a couple of circular flanges. Assisting is a four-blade fan, belt driven, with an automatic belt adjuster in the form of a long coil spring surrounding the fan support, this spring constantly pushing the fan upward. The bore and stroke, 4⅜ and 4¾ inches respectively, are a nearer approach to having these measurements the same than is generally found in American touring car engines, the principle, however, having a greater following abroad. By offsetting the valve chambers on the cylinder heads the use of two camshafts is eliminated, one shaft operating both intake and exhaust valves. This arrangement has not, as might be expected, sacrificed the valve area, as intakes and exhausts are 1¾ inch in diameter. Making these valves perfectly interchangeable is a whiff of standardization, and the use of nickel steel for the valve forgings indicates the careful selection of material in the car. The valve cages are held in position by screw nuts, copper gaskets forming a gas-tight union. The valve rockers' arms for intakes and exhausts are naturally of different length, the exhaust being somewhat longer owing to the valves being set in that part of the cylinder head remote from the camshaft. The fulcrum posts are bolted into bosses on the cylinder heads; the levers have long bearings in these, and lost motion is taken up by a helical spring. In the valve stems are inserted hardened steel ends, and the lift adjusting screws in the rocker arms are also hardened. The vertical lift rods are tubular, with spherical-shaped hardened ends, fitting similarly shaped depressions in the valve rocker arm. On the exhaust side of the motor separate steel pipes of large diameter lead directly down from the exhaust valve cages to a horizontal expansion chamber along the side of the crankcase. From the rear end of this a similar pipe connects direct with the double-chambered muffler carried lengthwise, midway of the car on the left side. Copper gaskets serve in all exhaust pipe connections. The right side of the motor, although not illustrated, has few differences from the exhaust, save, of course, the vertical lift rods, the carbureter and its three-Y tubing to the intake valves. A view is given on this page of the right side of the rear cylinder, showing the location of the timer on the top of its short vertical shaft H and also that of the oil pump L supported on the crankcase C and driven from a vertical shaft, this shaft and that for the timer being driven by bevel gears off the camshaft. The commutator is of standard wipe design. The oiler merits particular attention in that in it the Knox people have done away with multiple or gravity feed oilers and in their place use a gear-driven gear pump L. The lower part of the crankcase forms an oil reservoir, from which the lubricant is drawn by the pump. An oil duct is cored into the crankcase casting on the right side and oil passages are drilled from this duct to allow the oiling of each camshaft bearing. Oil passages are also drilled through the metal of the crankshaft bearing brackets, so that these bearings are fully lubricated. Channels are made in the crankshaft leading to the crank pins, and oil enters these from the main bearings under the influence of centrifugal force as well as pump pressure and lubricates the pins. A passage is drilled in each connecting rod, the mouth of which registers during a part of the stroke with an oil hole in the crank pin. When the rod is moving down the oil is forced upward, by virtue of its inertia, and lubricates the wrist pin. In the case



COMMUTATOR AND OIL PUMP DRIVE

there is at all times a spray of oil, and sufficient settles upon the cylinder walls to keep them properly oiled. All excess oil falls back into the reservoir and is strained and used over again in flooding all bearings. A gauge upon the dash indicates the pressure acting in the oiling system, and an adjustable automatic spring bypass allows any desired pressure to be carried.



KNOX STEERING GEAR

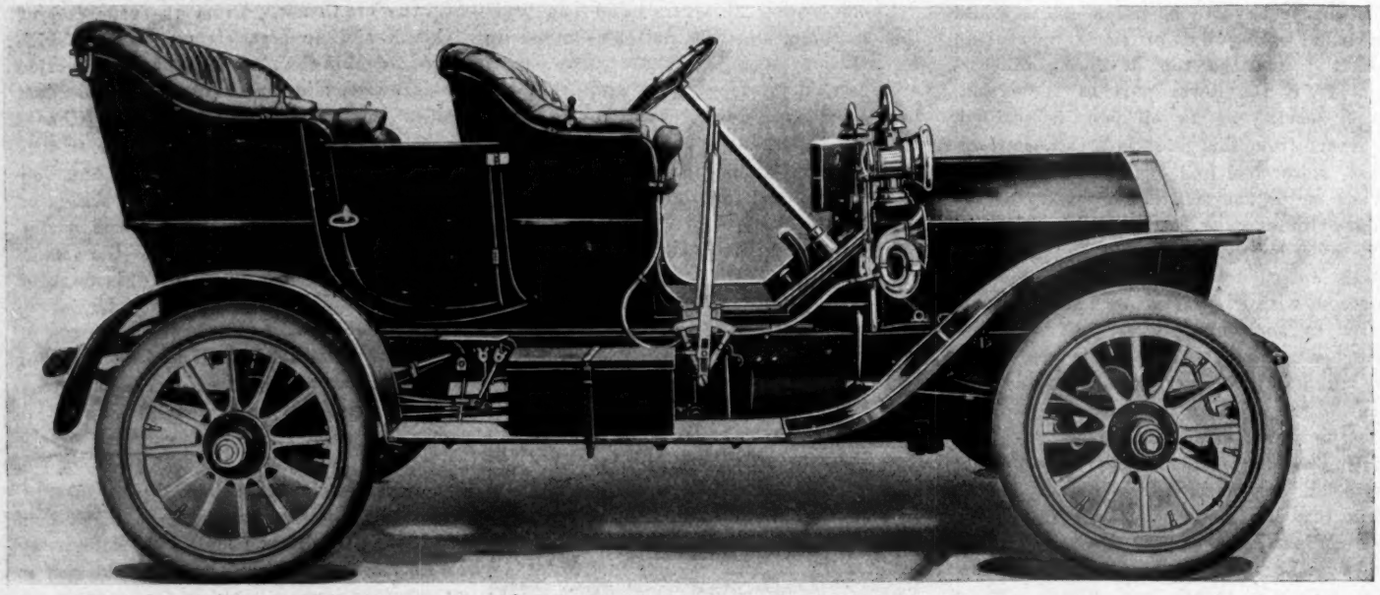
The Knox practice of a metal-to-metal, reversed cone clutch, operating in an oil bath, is continued in this model. The flywheel forms the female member, and is fitted with an oil-tight rear casing. To the cone member is attached a brake surface automatically acted upon during gear changes, thus rendering the meshing of gears an easy performance. Clutch engagement is accomplished by the aid of four adjustable helical springs, a large ball bearing taking the strain of disengagement. The clutch pedal is mounted upon the engine case, its action being transmitted through a cam. A coupling is provided between the clutch and the gearbox which permits the removal of the clutch without disturbing any other part of the system.

As explained previously, the gearset case and cover that is bolted to the rearward end of the engine bed, is readily removed by the withdrawal of the connecting bolts, but in addition to this, the gears and shafts can be taken out without disturbing the case or any other part of the power plant. Roller bearings are employed upon the gear shafts, and free use is made of chrome nickel steel. All gears are 1 inch face, six pitch, and are hardened. Direct drive is obtained on the third, or high gear, and the gears are proportioned, with the engine making 1,200 revolutions per minute, to give 40, 25 and 11 miles per hour. The reverse gear, with the same engine speed, gives 8 miles per hour. The transmission gears revolve in a heavy oil, and may be easily inspected by the removal of a large inspection plate. The gear arrangement is such that the reverse idler and its shaft may be removed without disturbing the other shafts or gears. On the right side of the gearcase is an oil-tight extension for enclosing all of the shifting mechanisms.

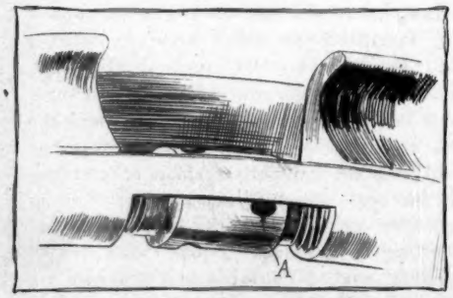
Steel brake drums are attached to each rear wheel, operative upon which are two sets of brakes, one by a pedal on the footboard putting into operation the double action external strap constrictive brakes, the other by a lever in close proximity to the transmission operating lever, being of the internal expansion type, comprising two bronze shoes working concentrically. The front axle is of heavy steel tubing, dropped in the center to give clearance for the engine base. The steering knuckles are formed of drop and hand forged steel, and are, with the carrying yokes, of large size. The steering device is of somewhat novel construction, designed with liberal wearing surfaces to minimize the possibility of inordinate wear and the consequent back lash. The springs are of good lengths, the fronts being 41 inches long and composed of six leaves, the rear 50 inches long and built up of eight leaves. The front springs are shackled at their rear ends, while the rear springs have non-reversible shackles at both ends. The rear springs are immovably fastened to the rear axle case, and consequently serve to resist torsional strains. Radius rods are employed to maintain the rear axle in position.

The wheel base is moderate, being 102 inches, and enables the car to be easily handled. The tread is standard, 56 inches, and the wood artillery wheels are equipped with 32 inch by 4 inch tires, front and rear, allowing a liberal factor of safety in tire equipment and being in excess of the requirements of the tire companies or of the equipment usually supplied on cars of this type and weight.

The steering column passes through the dash on the right of the engine and at its foot is equipped with a quintuple threaded worm cut from a solid bar of high carbon steel meshing with a nut of hard babbitt the internal threads of which are cast in babbitt over a special form, and afterwards finished to exact size by a special worm tap. Should it at any time become necessary to renew the threads the task is easy. The motion of the nut is controlled by a guide of large wearing surface, and the operating motion is transmitted through a bellcrank to the connected steering rod on the outside of the right frame member and thence to the arm on the steering knuckle. Adjustable ball joints are provided on the connecting



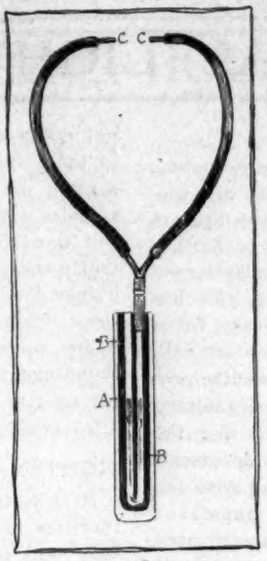
KNOX "H" CHARACTERIZED BY SHAFT DRIVE AND THREE-POINT SUSPENSION



HARTFORD TURNBUCKLE, OLD STYLE

rod and ample provision made for possible wear. The front wheels can be thrown to their extreme angles by one and one-half turns of the steering wheel, and the worm thrust is resisted by balls, ball bearings of large diameter being fitted to the front wheels. At the head of the steering pillar are fitted the spark and throttle levers operating in a fixed toothed quadrant. In addition to this throttle lever, an accelerator pedal is provided on the foot board so that the quadrant lever may be set for the minimum speed, the accelerator pedal being used for any speed in excess of the set minimum.

The chassis is fitted with either a side entrance tonneau or a stanhope body, the latter including a folding detachable rumble seat that can be used in place of the ordinary acorn deck. The power mechanism is protected by a sheet steel formed pan in two sections, the front section being fitted to the edges of the engine structure, and the rear held by spring hooks to the car frame. Sheet metal mud guards are provided, with a rubber covered running board. The forward guards are extremely wide and equipped with metal side flaps that meet and fasten to the pressed steel frame. The body is what is known as the straight line design and presents a very pleasing and symmetrical appearance. It is upholstered in hand-buffed red leather. This is but one of the 1907 models, the big chain-drive car being continued with such changes as the designers have seen fit to introduce. It should be mentioned that while a Remy magneto furnishes current in the big car, batteries are relied upon to do this task in the "H."



PREST-O-LITE TESTER

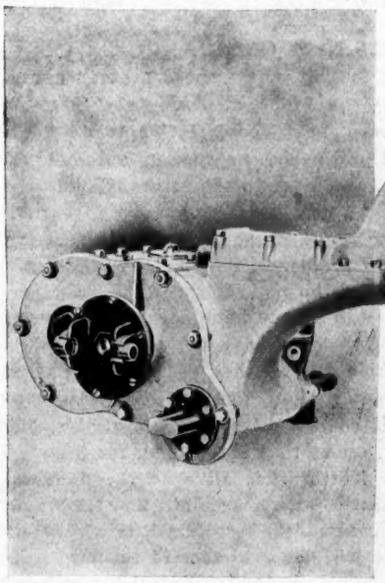
PREST-O-LITE TESTER

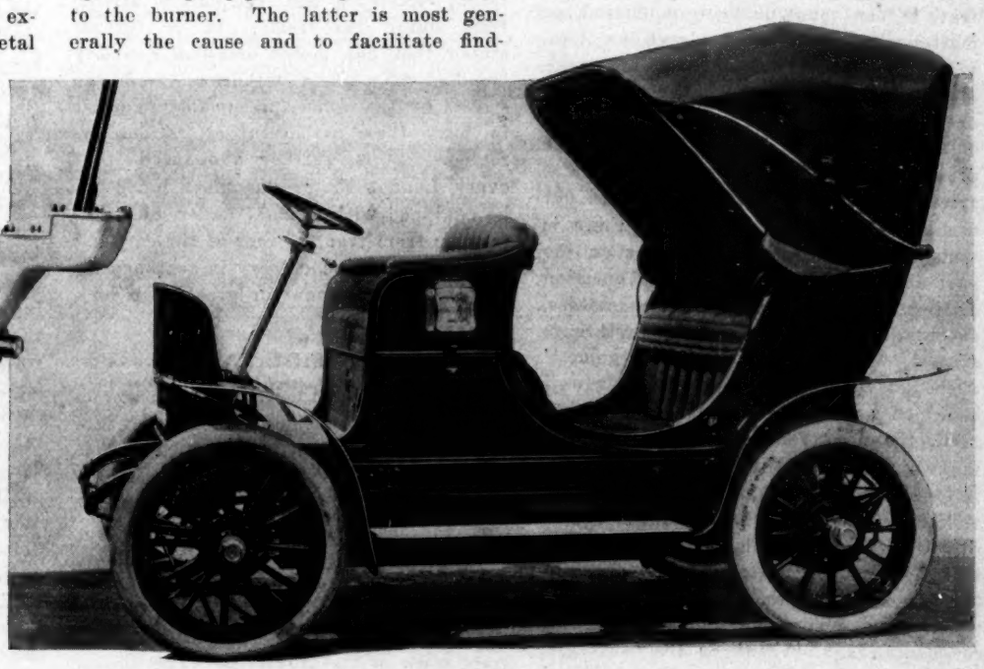
Because of complaints that its gas tanks do not give the amount of lighting service for motor car lamps claimed for them, the Prest-O-Lite Co., Indianapolis, Ind., has brought out what is termed a line tester. Practically all of the short service complaints come from one of two sources; the burners consume more than the stipulated ½-cubic foot of gas per hour, or there is a leakage in the gas pipe leading from the tank to the burner. The latter is most generally the cause and to facilitate finding out if such is the case the company uses the tester. In using the tester, herewith illustrated, the glass tube is filled with water until the water stands at a level marked A. The ends CC are attached to the lamp hose and the gas turned off at other lamps, if any. The gas is then turned on at the tank until the water stands at a level BB; the gas is turned off. If there is not a leak in the tank the water will remain at the BB level, but should a leak occur this level will change.

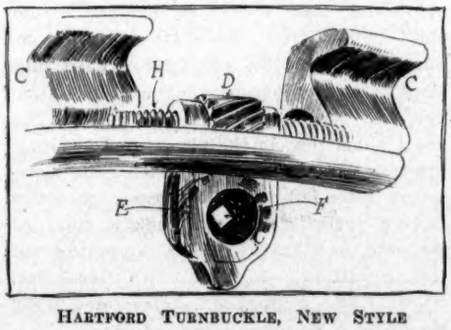
The device is extremely simple and is intended to fill a position in the lighting system that the volmeter and ammeter do in the electric system. Its small size permits of its being carried in any tool case, and its nature is such that in use but a short time, a few minutes at most, is needed to make the necessary discoveries as to leakage. The 1907 output of Prest-O-Lite tanks is reported by the maker to exceed far beyond that of the present year. The facilities for handling tanks is being improved upon.

LATEST HARTFORD

Herewith is illustrated the new style of turnbuckle to be used by the Hartford Rubber Works Co., Hartford, Conn., on all of its Hartford universal rims for the approaching season. To those not familiar with the present Hartford universal rim suffice it to say that the flanges retaining both the sides of the tire in position are mobile, being removable from the rim, and to retain them they rest in grooves and are tightened by turnbuckle action drawing the flange tight into position. Up to the present this turnbuckle was tightened and loosened by using a hand key which fitted into the holes A of the turnbuckle, it being necessary to pull the key out and put it into other holes several times for each revolution of the turnbuckle. In the new turnbuckle the principle is the same, but the method of operation is greatly quickened by using a square end crankwrench in place of the former hand key. In the new device the flange ends, C, C, are brought together by the right and left thread H, with one end in each rim. On this thread is a gear D in mesh with a worm E which has a squared opening F in the worm axle into which opening fits the end of the wrench.


END VIEW OF KNOX GEARSET


COLUMBIA ELECTRIC BROUGHAM IN 1907 DRESS



HARTFORD TURNBUCKLE, NEW STYLE

LEGAL LIGHTS AND SIDE LIGHTS

AFTER "TRAP" EVIL

The automobilists of Delaware county, Pa., which adjoins Philadelphia, are preparing to organize for protection against overzealous police officials and to further the objects of all such organizations—good roads, legislation, etc. A call has been circulated through the county for a meeting in the Glenolden, Pa., town hall, in the near future. Arrangements have been effected for permanently organizing the new association. The call for the meeting is a decidedly strong document. For instance, that section dealing with the "trap" evil says: "Recently traps have been made by constables who are in need of funds at points where they are least suspected, and if a man driving a car exceeds the speed limit by a fraction of a mile he is 'given the limit.' If a motorist is brought before a 'hayseed' magistrate he can count on being convicted, no matter what the law or evidence is. 'Convict 'em all,' is the motto of these fellows. Law don't go in their courts; they need the money. One or two actions to oust from office for incompetency, and the prosecution of these constables for false arrest, by a strong organization, will put the brakes on grafting. Unless there is some show of strength and fight on the part of the motorists it is only a question of time when a lot more hungry constables, encouraged by their grafting brethren's success, will start in the same game." Although Delaware county is rather well equipped as regards roads, the call sets forth the need for additional improved highways, and, continuing, says: "There is great work for an active highway committee, which should be given the necessary funds with which to bring proceedings against the supervisors responsible for any section of roads 'dangerous and a menace to public safety.' When action is commenced against one or two of these 'brilliant engineers of the highway,' there will be little difficulty with the balance." From which it may be gathered that Delaware county's brilliant road engineers will have to mind their p's and q's when the county automobile club becomes a reality.

GASOLINE DECISION

The court of chancery of New Jersey holds that the owner of a garage, licensed to store one barrel of gasoline in the building, which is a frame structure and adjacent to other frame buildings, will be enjoined from introducing gasoline into the tanks of the automobile inside the building, and from storing automobiles with gasoline in the tanks inside the building, the court holding that under the facts in the case the garage was a nuisance. The court distinguishes the risks in different surroundings, saying: "In a proper locality, amidst proper surroundings, it is not unlawful for the dangerous fluid used in these vehicles to be stored and used to fill the tanks of the vehicles, or for the vehicles with the fluid in them to be stored. But there is no occasion to relax the general principle so as to hold that this dangerous fluid may, because it is usable by these vehicles, be stored or used in a locality utterly unsuited, and amidst surroundings that fitted, and to an amount giving rise to great danger; or that the filled vehicles may be so stored."

TIGHTEN UP ON LICENSES

It is stated that the Scotland Yard authorities in London have announced that they will not license any further motor buses which do not meet with certain particulars with respect to great power and other constructive points laid down by experts employed by them, in view of the recent accidents and complaints arising from motor bus traffic. It is further stated that one motor omnibus company has had fifty buses withdrawn from the streets by the police, presumably in order to have these structural alterations effected. It is further announced that every London motor bus must in future be equipped with a metal under-shield extending from front to rear of the car, and enclosing all its machinery in such a manner that no lubricant or grease can leak onto the roadway.

MAY DEMAND SIDE TAGS

With the end of the driving season practically in sight, State Commissioner of Motor Vehicles J. B. R. Smith admits that the 4-months-old New Jersey automobile law has not, in every instance, worked with the smoothness its sponsor, Senator Frelinghuysen, anticipated. One weakness of the new measure, says the commissioner, is that it has not provided a certain means of identification where automobilists transgress some of its provisions. The figures on the tag are so small that in not a few instances violators of the law have been able to get beyond eyeshot before their numbers could be made out. He may urge for next year not only larger figures, but side tags in addition to the present fore-and-aft numbers, and if any culprit escapes with his car thus decorated he will have to travel at a 40-mile clip or better. Under the new law even the most serious offenders are not extraditable. The commissioner proposes to remedy this defect by having these important offenses classed as misdemeanors, thus eliminating the necessity of immediate arrest and the taking of offenders into custody without warrant. Country constables have been taking advantage of the arrest-without-warrant privilege, and not a few of them have held up automobile travelers on slight provocation. Changing of tags on crossing state boundaries has been a fertile cause of trouble between automobilists and the authorities ever since the law went into effect, and the commissioner is at work on the details of a system of interstate numbers designed to nullify this defect. In all other respects the law, says the commissioner, has worked quite satisfactorily. About 13,000 cars have been registered, and 15,000 drivers have taken out licenses. Of this number but seven have had their licenses revoked—an excellent indication, thinks the commissioner, that the law is being generally observed. Although the law says the money collected from fines shall be turned over to the state treasurer to be by him appropriated for road repair throughout the state, but a small proportion of these fines have as yet been turned in by the justices of the peace of the various counties, possibly because the law does not definitely state that they shall be turned in at once, and the justices are holding on to them till the end of the year.

WANTS NEW ORDINANCE

Not content with a speed ordinance, and a very rigid one at that, City Solicitor Northrup, of Toledo, O., wants an additional ordinance to license automobiles, which, according to the astute official, will bring the city $15,000 annually in enriching the funds of the treasury. In framing the new ordinance, the official will insert a clause for the numbering of the machines. Visitors to Toledo have been surprised because Toledoans have not been obliged to tag their cars as they do in other places. The motorists of the city have also congratulated themselves because of this, but now it seems that it will end, for City Solicitor Northrup is alive to the financial possibilities of a license law and the whole affair is bound to be so much talked about that it will be a wonder if the tag ordinance is not passed. Toledoans, too, have been fortunate heretofore in having a liberal interpretation put on the speed limit.

QUAKER RULING

The supreme court of Pennsylvania has decided that a city ordinance requiring the owner of an automobile to take out a license, and carry a license tag, is not affected by act of April 19, 1905, P. L. 217, providing that every automobile owner shall obtain from the state highway department a license, and that license tags shall be carried exhibiting the license number and the number of the year. The court holds that in the absence of any prohibition against local legislation, the legislature intended that the local authorities having jurisdiction over such a class of subjects, and having special knowledge of the condition of their own localities, might, by ordinance, determine what should be a reasonable rate of speed.

THE READERS' CLEARING HOUSE

MOTOR KNOCKING

Brookville, O.—Editor Motor Age—I should like to ask a question through the columns of the Readers' Clearing House, and would respectfully request an answer in the forthcoming issue of Motor Age. I am running a single-cylinder Cadillac and have trouble with my motor knocking. When the engine car is running on a level road the motor behaves spdendidly, but on attempting to surmount a grade the knocking appears. This occurs when the throttle is about half open, which should give enough gas to pull the car with ease. The knock disappears as soon as a level road is reached. When ascending a grade and I open the throttle wide, the knocking does not appear. I should like to be told how to remedy the trouble.—J. P. D.

It is apparent the operator leaves the spark well advanced when ascending grades; or, possibly, the oil supply is lacking under the heavier work occasioned by hill climbing. The former is more likely the trouble, however. This is borne out by the statement that, when a good charge of gas is given, the motor does not knock; in other words, this means that the additional gas drives the motor at a speed that prevents ignition before the piston has reached the top dead center. The operator will discover upon trial that it is necessary to increase the supply of gas and to retard the spark in ascending hills, and in descending to cut down the supply of gas and advance the spark, if the clutch is permitted to remain engaged. It is best, however, to disengage the clutch under ordinary circumstances and permit the car to coast the hill.

MOTOR CAR HISTORY

Chicago—Editor Motor Age—If possible please tell me through the columns of the Readers' Clearing House who prophesied the coming of the motor car.—William H. Townsend.

This would be ancient history. Possibly Charles E. Duryea might answer the question. Daimler is considered the father of the motor car, although power-driven vehicles were made before his time. The history of the power-driven road vehicle dates back many years and is too long to be told in the Readers' Clearing House.

SPEED CHANGE GEARS

Nashville, Tenn.— Editor Motor Age—More or less discussion is heard regarding the gear which can be used most advantageously as the direct drive. A consensus of opinion seems to favor the next to highest gear in the case of four speed cars, and doubtless the high-powered cars will more commonly be geared in this manner as a result of the present tendency to build cars with a higher ratio of power to weight. But the disadvantage of driving through gearing—other than the gear and pinion on shaft-driven cars—is intensified when the driver finds his roads permit of most driving on the highest gear, for it is under this circumstance that his car should be least noisy and that frictional losses should be at the minimum. It will be possible only where great power is available to so gear cars that the propeller shaft can be driven faster than the engine itself; and with so much power there would be no use for a reduction of gearing except to secure slower speeds than are obtainable by varying the engine speed. Then it seems the real question to be solved is not one of how many change speed gears, or which one for direct driving, shall be used, but rather a question of providing suitable means whereby the car may be quickly slowed down and as readily accelerated without the use of gears. It has been found that high-powered cars can be operated more satisfactorily by slipping the clutch, but this method is at once decried, principally because the clutches which thus far have been in use would not stand a sufficient amount of slipping without constant adjusting and replacement. The wide use of the multiple disk clutch on the new cars is a step toward less gear shifting, but the friction of the slipping disks and the heavy spring pressure necessary to lock them together is quite a disadvantage and a source of more or less unreliability. Recently a description has appeared in some of the motor car journals of a hydraulic clutch and speed variator which seems to come nearer solving the clutch and shifting gear problem than anything yet brought out. Tests show it efficient and positive as a clutch and of much value as a speed variator in that it affords a flexibility of control equalled only by a steam engine. The disadvantages of clutching and declutching made necessary in driving gasoline cars may be accomplished with this hydraulic clutch without the slightest injury to the clutch or shock to the mechanism. Briefly described it consists of two members—a cylindrical housing or casing provided internally with a cored out passageway which is filled with oil, and a revolvable head or core, provided with movable vanes, on a shaft extending through one side of the housing. The core is surrounded by the housing and is caused to be locked thereto or permitted to revolve freely therein by the manipulation of an internal valve in the passageway of the housing. As much or as little slip may be had as desired, this range being from the valve wide open when the clutch would be entirely free, to the valve fully closed when the clutch would be positively engaged. The variations of speed lie between these points and are unlimited. In this way a car is provided with any speed change on only one gear, which in the case of the high powered cars may be the high gear or direct drive. Used on a racing car, this hydraulic clutch and speed variator would permit of the use of a gear ratio so high as to be practically unattainable in any other way. It is not unlikely that next year's eliminating trial for the Vanderbilt race will see a candidate equipped with a 150-horsepower engine driving through this hydraulic clutch and speed variator direct to an axle geared so high that positive engagement with the engine will result in an axle speed of a much higher ratio than has been found practical through multiple speed change gears. In fact, the design of this proposed racer contemplates a full closing of the clutch to positive engagement only after a velocity of 40 miles per hour speed has been reached. Such construction gives direct or gearless drive on any speed, and in the opinion of many who have seen the hydraulic clutch and speed variator under test it solves the speed change gear problem in high powered cars.—John T. Landis.

USING ANTI-SKID DEVICES

Chicago—Editor Motor Age—I am a physician and have been driving a car since spring. I am told it will be necessary to use either tire chains or anti-skid tires when snow appears. Please tell through the columns of the Readers' Clearing House which ought to suit my purposes.—L. W. S.

Chains will probably prove more effectual where there is considerable snow or where the road is particularly greasy, though they will have some tendency to wear the tires if used on comparatively clean asphalt pavements. They are, however, easily put on and removed. The steel-studded treads are desirable where there is only a small amount of snow and where the streets are fairly clean.

USES OF THE MAGNETO

Oil City, Pa.—Editor Motor Age—The following questions answered through the columns of the Readers' Clearing House will be greatly appreciated: 1—Can a magneto designed for make-and-break ignition be used for jump spark in connection with a jump spark coil? 2—Is not a low tension magneto used with make-and-break and a high tension magneto with jump spark? 3—Can a high tension magneto be used without a jump spark coil? 4—Is it necessary to use batteries to start an engine using a magneto?—Subscriber.

1—No. 2—Yes. 3—Yes. 4—Not necessarily but frequently and always when starting the motor from the seat. The use of the high and low tension magnetos was fully explained in Motor Age in the issue of May 24, 1906.

THE CAB

MOTOR SUPERIORITY IN LOAD AND SPEED

NOTHING within recent years has been more popularly received than the taximeter, as used in Paris on the new motorcabs. Introduced some two years ago, for use on horse hacks, they immediately proved a great success. The fare for a short distance is cut down to about half that which existed before its application, while rows and disputes with the driver became a thing of the past. Around the Paris opera house are stationed some motorcars which are supposed to be for hire. The price asked is excessive and the cars do not get a ready acceptance by the public. There they remain all day, barely paying their way. These motorcars have been there every day for several years, and the experiment was thought a failure by those interested in public motor traffic. Then the right man came along in the person of Lazare Weiller, with friends, who secured the rights of the French exploitation of the German Taximeter Co. for motorcabs. They secured an option of the entire output of the French firm of Renault frères for a neatly-designed motorcab, and thereupon formed the Paris Motor Cab Co. and the French Taximeter Co. The venture is now an assured success. There are 250 Renault cabs, 8 to 10-horsepower, neat and rapid turnouts, each fitted with the taximeter, with its indicating flag to show when the driver is free to take up fares, chasing along the boulevards.

Some months ago a strong company was formed in London, Eng., on the enterprise of the same personages. The company has a capital of $1,300,000 and is formed with the intention of exploiting taximeter motorcabs. The cabs themselves are to be supplied by Renault frères, and, in fact, the first few chassis are to be delivered this October. Five hundred cabs will be supplied by the Paris firm at a cost of $1,500 each, exclusive of tires and taximeters. The prospectus of the London General Motor Cab Co., as it is known, estimated the earnings per day per cab to be $9, and the driver's wages and cost of gasoline to be 25 per cent of this figure. Furthermore, the following expenses are estimated per day per cab, as based upon the experience of the Paris Cab Co., which data is particularly accurate.

Management, general expenses, insurance and garage	$0.50
Cleaning	.20
Tires	1.12
Upkeep of motors	.50
Upkeep of car bodies	.37
Oils	.10

which expenses, deducted from the gross earnings, leaves a net profit of about $3 per day per cab.

Efforts are being made in New York to form a cab company, and Colonel Robert Thomson, International Nickel Co., has been interested in the scheme. It is desired to introduce the Renault. These Renault chassis will have to be purchased through the French Automobile Cab Co.—Compagnie Francaise des Automobiles de Place—which has secured a control of the entire output of Renault frères for these cabs. Its commission is 6 per cent on the cost of the chassis. Mr. Weiller and his associates are not yet committed to any American firms in respect to this cab venture in New York or any other city in the United States, but they are now receiving offers from more than one person representing American capitalists and interests, so it is likely that they will close with one or other before the end of the present year. The French Automobile Cab Co. is closely connected, though distinct, with the taximeter company—Sté Générale des Compteurs de Voitures—and the two work hand in hand as far as their mutual interests are concerned. In fact, the two companies above mentioned, with their sister company in London, now form a strong group—probably the strongest in Europe—for this class of motorcar enterprise. It is understood that the New York Transportation Co. is also strongly interested in the scheme of placing motorcabs on the New York streets, and has been in negotiation with the Paris company in respect to obtaining a sample cab and taximeters, which have, in fact, been shipped to it in New York. The fares charged are higher than for horse-drawn vehicles, and rightly so. They are graded as follows: 32 cents per mile for the first mile and 2 cents thereafter for every 300 yards. This for two or more persons. The cab will hold four people, but the fares remain the same. Parcels are charged extra, and waiting is also charged at per hour.

THE MEETING OF THE OLD AND NEW

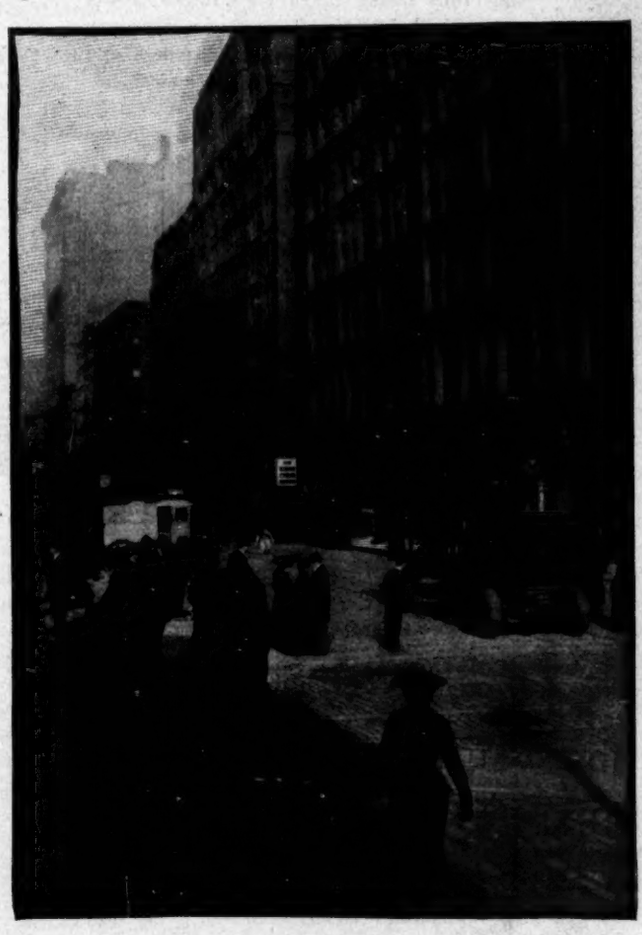
As regards taximeters, the French company obtained its rights from the German firm and paid a high price—some $40,000—for them. These amounted to little in value and the French company has since developed quite a number of taximeters for

special purposes, and there are some 7,000 taximeters in service in Paris at the present time. The field, however, is open, for although the French company has patented several forms of special taximeters, the general design can be worked up in many ways. A taximeter company to be formed in New York or any other city in the United States could purchase sample taximeters from the Paris company at about $40 apiece, with deliveries of 2 months or so. As a matter of fact, it may safely be considered that the patent situation is a weak one and the only thing which the French company could really sell would be its undoubted great experience, designs and sample apparatus. A taximeter is not a very difficult instrument to design, or is it liable to excessive wear. Yet it was some time before a really practicable form of instrument was placed in service. There are some six or eight distinct forms in service on the Paris cabs. A person copying the Paris type of taximeter or employing something similar could not be arraigned for infringement, for the few patents taken out cannot in any way be termed fundamental or amply protective for the device.

R. F. Tochermann, of the Berlin Taximeter Co., arrived in New York about the end of September and intends staying 1 month or more with the intention of negotiating the sale of the patent rights and experience, designs and goodwill of the German company as far as the United States is concerned. The above is a clear expose of the present situation as it appears from Paris, and it is believed that there is at least one concern in New York, owners of patent rights for a taximeter for vehicles, which is asking a high price for its license. Such a license, as regards the French Taximeter Co., is only of value in respect to their experience and designs, and the French company practically recognizes as much, tacitly admitting that the patent situation is a weak one; and from what is seen of the state of the matter in Paris, an American firm would be ill-advised at present to pay large sums for the patent rights of the French or any other taximeter.

SYRACUSE SHOE DELIVERY

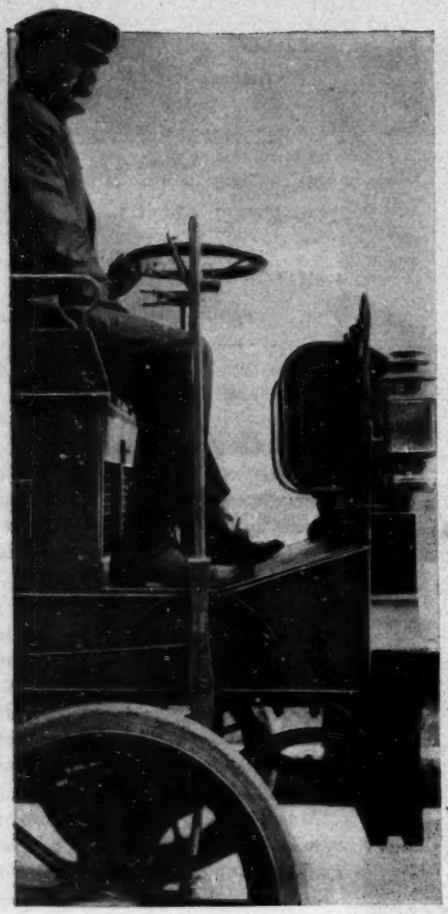
The use of the motor car for business purposes by the Chicago Quick Shoe Repairing Co., 120 James street, Syracuse, N. Y., illustrates the diversity of ways in which motor power is being taken advantage of. September 1, A. Ball & Sons, proprietors of this company, installed a 10-horsepower gasoline Cadillac which they bought from the Syracuse Motor Car Co. The machine is used for collecting and delivering shoes upon the calls which come in over the telephone or by mail. The shoes are collected, taken to the shop in James street, repaired, taken back the same day or the next. The machine makes about 35 miles a day and since September 1 it has cost 30 cents a day for gasoline and 25 cents for oil. The only repair so far has been a puncture in one tire. Charles Ball, one of the sons, drives the machine, which is kept in a private barn on Almond street. The work was formerly done with a horse and wagon. The company, by means of the automobile, will add to their territory a number of the surrounding villages, to which regular trips will be made. This, it is expected, will increase the business more than enough to pay for the automobile, which cost $1,100 complete. It is the opinion of the company that the advertising value cannot be overestimated. The machine running through the streets of Syracuse every day is seen by many thousands of people and, aside from the fact that the new territory will be opened up, the company came to the conclusion that this advertising was cheaper than newspaper space. The character of the business is such that a heavy machine is not needed, and as the loads are always light the speed which can be made is only limited by the ordinances of the city. The machine used is the regular Cadillac delivery wagon equipped with Hartford-Dunlop tires. The use of a delivery for this purpose unfolds a long list of similar fields. Large shoe industries with local delivery in many cities could employ light machines for this delivering work. Other phases of the shoe industry offer equally virgin and fertile soil for the gasoline motor.



THE MOTOR TRUCK—THE MONARCH OF THE CITY STREET

SPAIN'S MOTOR BUSES

A service of motor buses has been inaugurated in Barcelona, Spain, and is said to be reaping a rich reward of 2-cent fares from an appreciative public. The buses are mostly of French build, but arrangements are now pending whereby Italian chassis can be used, the bodies being made in Spain. As Spanish roads and streets are not so good as those of France or Germany it is not surprising to see solid rubber tires used, as these tires are much more reliable than pneumatics, cost considerably less and wear immeasurably longer. On rear wheels twin tires are furnished where the load is excessive, like fifty or sixty persons, yet in other cases with light loads the single tire is sufficient. Bodies are not unlike those seen so commonly in the streets of London and Paris, the entrance generally being from the rear, where a platform with surrounding rail and step at one side permits the passengers to mount or dismount from the sidewalk. Single-deck vehicles are more popular, they meeting with the general approval of the easy-going Spaniards, who prefer riding on the ground floor to climbing staircases. The seating is of ordinary street car style, with seats running from front to rear at each side, carrying heavy leather upholstery and having arrangements beneath for small baggage. The glass windows specially large can be dropped down out of sight in hot weather and used at other times. The buses run from the central plaza of the city to a busy section 2 miles distant and are giving a 5-minute service. They are strong and fairly comfortable vehicles, capable of transporting about thirty people, fifteen on top and fifteen inside. They are equipped with benzine motors of 24 horsepower and make about 20 per cent faster time than the electric street cars with which they compete. The motors of the vehicles were built in France; the coach work was done in Barcelona, while the wheels are equipped with solid rubber tires of German make. They cost complete about $7,000. Gasoline in Barcelona sells at about 60 cents a gallon and lubricating oil at about $1.60 a gallon, but in spite of these abnormal prices the motor buses, which have been in operation about 2



MEISELBACH CONTROL PARTS

months, give such promise of earning good money that the company within a few weeks will have two or three other lines running, with a total of 35 buses in the service. The company is known as La Catalana Compania Omnibus, and is located at 232 Calle Aribau, Barcelona, Spain. Barcelona has a population of about 700,000 within the city limits, and is the third city in Europe to establish a service of motor buses, the other two being London and Paris.

PITTSBURG A PIONEER

Postmaster W. H. Davis, of Pittsburg, has gained his point in regard to having automobiles collect and deliver mails downtown and, incidentally, Pittsburg will be the first city to try this new method. Last week First Assistant Postmaster General Hitchcock at Washington assured Postmaster Davis that the motor cars would be secured as soon as possible. Two months ago this plan was urged as the best and easiest way of overcoming the congestion in the downtown mails. There are 370,000 pieces of first class mail matter sent out every day from downtown Pittsburg, the part of the city between the Hump and the Monongahela and Allegheny rivers. This is fully three-fourths of the mail of the entire city. At present the old "one man" system of collection is in force and for months it has been entirely inadequate to the needs of business and the postmaster has been forced to turn down requests for more collection places. It is proposed to buy one or more large motor trucks screened like regular mail wagons and costing from $2,000 to $2,500 each. These trucks will make easily 100 miles a day, whereas the horses now on the mail wagons can not make over 15 miles a day on Pittsburg's narrow, rough and hilly streets. The truck will run on a 30-minute schedule, leaving the post office and stopping at certain places at stated times. At these points it will take up the mail from the big collection boxes, the chutes in the skyscrapers and from the regular foot collectors, who will bring their loads to it instead of tramping a dozen blocks to the post office and thus losing much time. The trucks can make better time than any mail wagon even in the busiest hours of the day, and it is expected that the new method of collecting will enable Postmaster Davis to add 25 per cent more letter boxes to the downtown triangle.

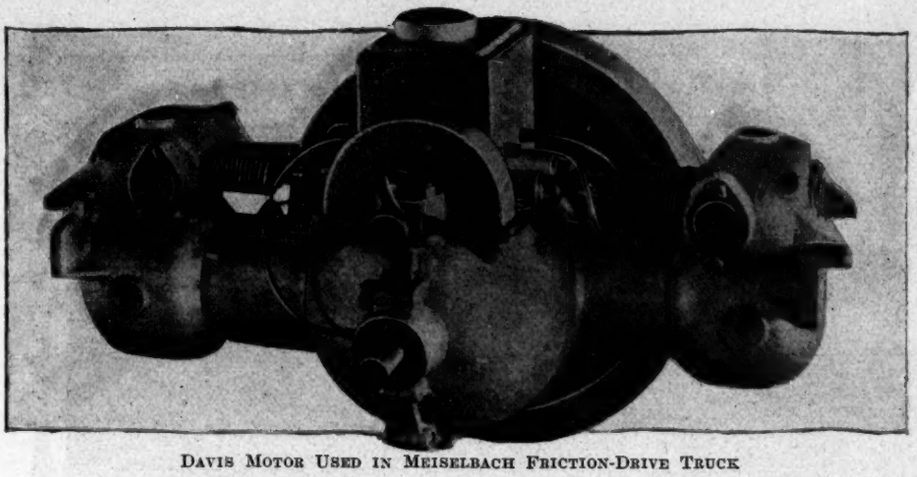
MEISELBACH TRUCK

Augustus D. Meiselbach, head of the A. D. Meiselbach Motor Wagon Co., North Milwaukee, Wis., a recent entrant into the manufacture of commercial trucks, made on the October 12, a run with his 1-ton truck from the factory to the Excelsior Supply Co., Chicago, 120 miles, carrying a load of 1 ton of Avery gas lighting tanks which were delivered to the supply house. The run was made, not as a method of comparing the cost of transportation by motor wagon with that by railroad train, but rather in the hope of showing the speed possible on rural roads with a loaded truck, and further proving the reliability of the truck. To be exact the load consisted of twenty crates of gas tanks, two tanks to the crate and three crates of metal straps for attaching the tanks to cars, increased by a driver, Mr. Meiselbach, and two passengers, the total being close to 2,700 pounds. The route planned from Milwaukee to Chicago lay along the old Milwaukee road as far south as Racine, from which place to Kenosha the lake shore road was followed, after which a jog was made to the Milwaukee road again as far as Waukegan, when the lake shore road was followed to Chicago. The intention was to make the run in a short day, and with this object in view the factory was left at 8 a. m., but was not completed until 12 midnight, the total elapsed time being 16 hours, or an average of 8 miles per hour. In calculating the actual traveling time, 1 hour required for dinner at Kenosha, 1 hour delay when the gasoline supply was exhausted along a country road, a 15-minute pause for carbureter trouble and 1 hour for a weak culvert must be considered, thus reducing the running time to 12¾ hours, or close to 10 miles an hour average. The carbureter flooding was the only pause on the run owing to mechanical troubles. From Waukegan to Chicago, 35 miles, an average speed of close to 20 miles an hour was made.

MEISELBACH IN FRONT VIEW

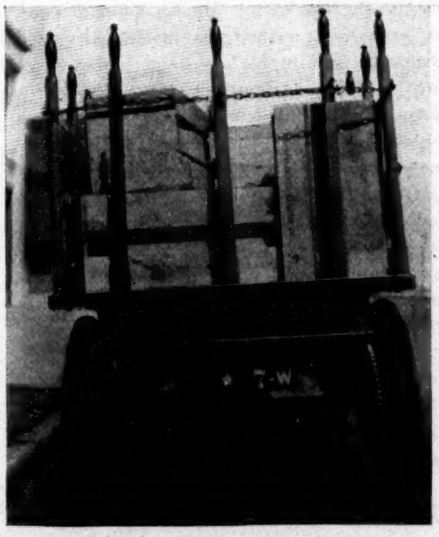
The Meiselbach wagons, placed first on the market during the past summer, have as their feature a friction form of transmission which eliminates a clutch in the motor flywheel, a transmission or change-speed gear and a differential gear. The power used is generated by a two-cylinder, 18-horsepower, water-cooled motor carried crosswise of the car beneath the driver's seat and from this the drive is by shaft, friction transmission and side chains

MEISELBACH 1-TON MOTOR TRUCK LOADED WITH AVERY GAS TANKS



DAVIS MOTOR USED IN MEISELBACH FRICTION-DRIVE TRUCK

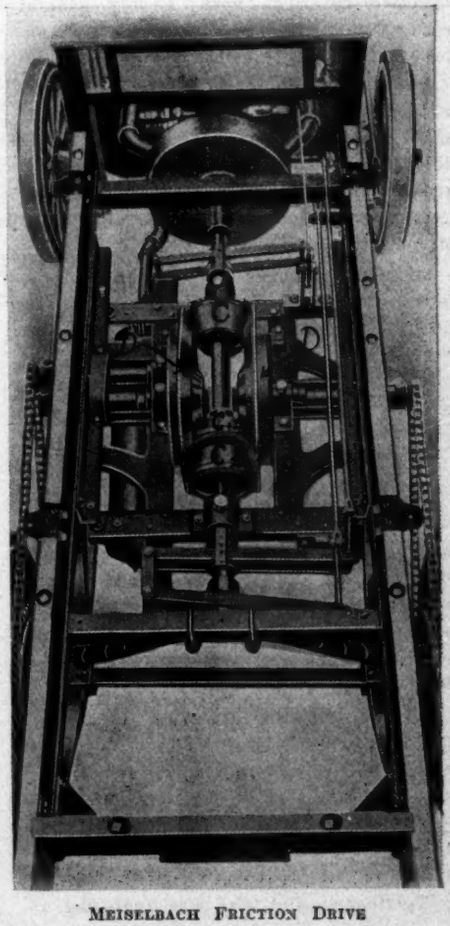
to the back road wheels. The Meiselbach friction transmission, as illustrated in a chassis view, follows standard lines having a continuation of the crankshafts well back to the rear axle, this continuation carrying three conical friction wheels C, C1 and C2, which are brought into contact with a pair of large-diameter friction disks D carried on cross shafts, from the ends of which shafts the two side chains connect to the back wheels. Three friction wheels, all very small, are needed on the continuation driveshaft, the forward one C for reverse speed, the back two, C1 and C2, for driving ahead, the larger one of the two, C2, for starting on slow speed and the smaller one, C1, for driving direct. The Meiselbach friction disks D are of a combined disk and cone design with a 4½-inch face on the friction cone wheels C, C1, C2, and as these cone wheels are thrust against the cones on the large disks D the contact is made without a direct side thrust on the disks. In the high speed cone C1 wheel it should be noted there is a cone and flat surface on it, the cone surface for contacting with the cone edge of the center part of the friction disk D and the flat surface for bearing on the flat portion of the disk. There is, in short, a double contact, a cone and a flat surface. The reverse cone C, made of tar fiber, works on a sliding key on the driveshaft, the high speed cone wheel C is held to the driveshafts by set screws, and when it is brought into use the entire shaft is moved forward, which is made possible by a sliding joint in the forward part of the shaft. The large cone friction wheel, C2, works on a sliding key and is moved forward into engagement, the shaft not moving in this case. The large friction disks D are of gray iron made with as smooth a friction surface as possible, and each is carried on a short shaft of 2-inch material, which shaft is in turn carried in phosphor bronze bearings. On the right side, the chain sprocket is carried on the end of the shaft carrying the disk, but on the left the chain sprocket is on a very short shaft paralleling the disk shaft and just ahead of it. This short shaft is driven from the disk shaft through bronze and steel gears always in mesh. The short shaft is essential to get the proper drive at the back wheels, the left disk revolving in a direction opposite to the right one at all times. The entire transmission parts are carried in a heavy angle iron bed, B, attached to the under side of the angle frame pieces, all bolts used being either cotter-pinned or fastened with lock nuts. Individual oilers are used on each bearing on all shafts.



MEISELBACH REAR CONSTRUCTION

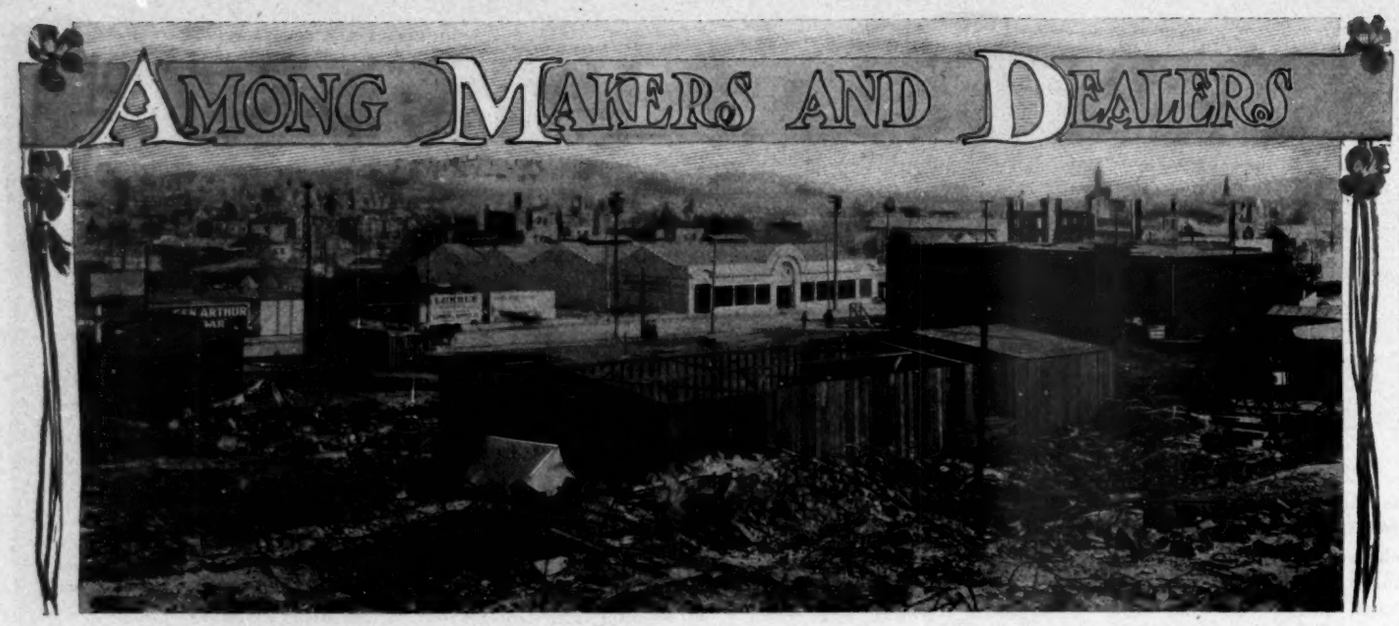
The motor is of the Davis build, characterized by having one-half of the spherical crankcase cast integrally with each of the cylinders and also with the valve ports in the top of the cylinders, included in this casting as well as the water-jackets. Valves are mechanically-operated, the commutator is carried on the front end of the camshaft, a Schebler carbureter furnishes mixture, the 9-gallon gasoline tank is on the dash, batteries are beneath the seat, so is the coil, and all parts of the seat and footboard being removable, it is possible to see the entire motor and its parts by taking out a few flooring boards. The radiator is a Long vertical tube one, extending almost as low as the front axle, and to protect it a large wood crosspiece midway of its height and supported on the frame ends crosses in front of it. The starting crank is inserted about the middle of the radiator. The running gear is made mostly of Timken parts, the front axle, of square cross section, 1¾ inches to the side, and the rear axle, also of square cross section, but 2 inches to the sides. Front tires are 30 by 3½ inches, rear tires measure 34 by 3½ inches, both Firestone rubber; the wheelbase is 96 inches, the tread standard and the weight 3,000 pounds. Bodies of any style are fitted. Beside the 1-ton machine, others of 2 and 3-ton capacity are built.

The car control differs materially from that of most friction machines. Rising at the right of the footboard is a long, upright lever, in neutral position when vertical and giving forward drive when moved into either of the four notches ahead of the four notches behind the neutral. When moved into the notches back of neutral slow speeds ahead are successively obtained, and using the notches in front of the neutral notch, faster forward speeds are gained. The reverse is by pedal. Braking is through friction bands acting on drums on the outer faces of the friction disks D, these drums not appearing in the chassis illustration. A pedal operates these brakes and, when necessary, the reverse can be used for braking. In steering, a vertical column with large hand wheels comes into use, the bottom of the wheel column connecting through worm and rack gear with the steering knuckles. On the steering column beneath the wheel are throttle and spark levers.



MEISELBACH FRICTION DRIVE

AMONG MAKERS AND DEALERS



NEW GARAGE JUST COMPLETED BY THE LOCOMOBILE CO. OF AMERICA AMID SAN FRANCISCO'S RUINS

Moves to Plymouth, O.—The Commercial Motor Truck Co. has moved its plant from Toledo to Plymouth, O.

Another New Plant—The American Locomotive Co. is now building a three-story factory and addition that will be used for the manufacture of automobiles. The structure will be 64 by 154 feet.

New Locomobile Garage—A photograph recently taken in San Francisco shows the new Locomobile garage in the center of the picture. The garage consists of four separate buildings with a big general white front, with the entrance in the center of the structure.

Power Boat Show Dates—W. C. Anderson, manager of the Chicago power boat show, announces that the affair will be held March 2 to 9 in the Seventh regiment armory under the auspices of the American Association of Engine and Boat Manufacturers.

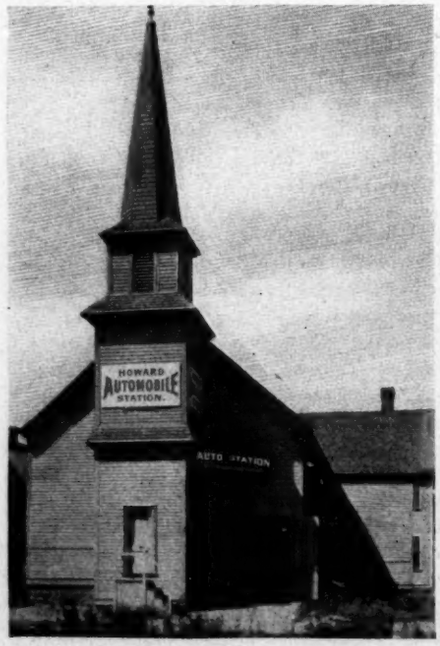
Michelin Changes—E. D. Winans, because of ill health, has resigned his position as general manager of the Michelin Products Selling Co. and will go to California for a rest. Edward W. Elverson, treasurer of the concern, has taken control of the affairs of the company.

Gets Orders from Pierce—The Autocoil Co. of Jersey City, N. J., announces that it has again secured the ignition contract from the George N. Pierce Co. for 900 four-cylinder and 100 six-cylinder coils. In addition to the regular Autocoil equipment the Pierce cars will have a high tension magneto system, Manager Meyers of the Autocoil Co. says.

Absorbed by the Standard—Earl Canedy of Chicago Heights, Ill., has transferred his entire plug business to the Standard company of Torrington, Conn., which will continue the manufacture and sale of the Breech-Block spark plugs. The Standard company employs 1,000 workmen at Torrington and also has factories at Coventry, England, and Achen, Germany, where the plugs will be manufactured for the European trade.

Located in Kansas City—The Royal Tourist Car Co. has established a garage and salesrooms at 1108 East Fifteenth street, Kansas City. C. E. Kirchmaier is manager.

Many Changes—On the eve of the annual meeting of stockholders of the Kansas City Motor Car Co., which takes place November 1, F. E. Wear, president, has given out this statement covering some facts already published and others: George K. Wheeler has resigned as general manager, and that position is now vacant. J. E. Caps is vice president and R. Caps secretary and general manager. The offices of the company are at the factory at Sheffield, a suburb. Christie & DeCamp are sales agents, with offices and salesrooms at 310 West Ninth street. They have contracted for the output of the factory for the next 3 years.



BOSTON CHURCH A GARAGE

Adds Two More Cars—The Palace Auto Co. of Kansas City has added the Franklin and Oldsmobile to its line, which heretofore has included only the Pierce.

Church as a Garage—What is without doubt the most unique garage in the vicinity of Boston is located on Howard avenue, a few yards from one of the busiest streets in Dorchester, Mass. A small wooden structure, with spire jutting skyward, formerly a church, has been transformed into a fully equipped garage, housing a large number of cars of all descriptions. Built about 30 years ago as a Methodist meeting house, it was used later by the Latter Day Saints, and again changed a few years ago to the home of a fairly prosperous evangelical society. The St. Mark's Lutheran church was its last title, and after a very flourishing existence here, the society moved to new and more commodious quarters. After laying idle for a time, an enterprising motor car man happened along, and quick to see the possibilities of the place, fitted it up, and has since been doing a flourishing business.

Prest-O-Lite Changes—The Prest-O-Lite people have just completed arrangements to install in Boston at once a new pumping station to take care of all New England recharges on Prest-O-Lite tanks. The New England territory will be taken care of from Boston by the Prest-O-Lite Co. of New England, Frank D. Stranahan, manager, the offices at present being at 541 Tremont street. Arrangements have also been made for a new pumping station at Harrison, N. J., and within 30 days the company will be able to deliver to all New York city, state, and New Jersey users recharges from the Harrison plant, which will be attached to the Commercial Acetylene Co.'s plant at that place. With these two new pumping stations, in connection

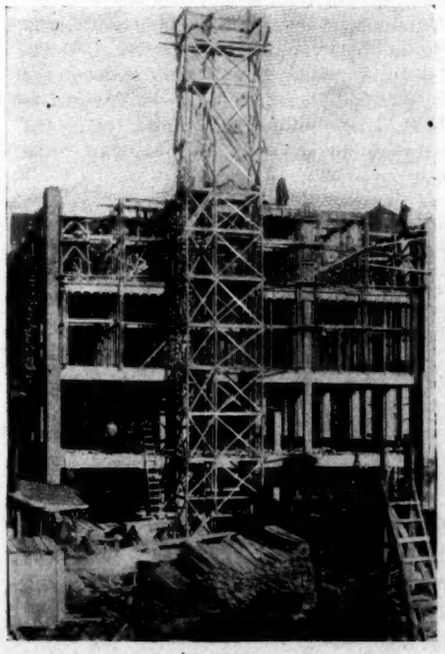
with the Indianapolis and Point Richmond, Cal., plants the company will be in position to make immediate delivery to agents in all parts of the United States during the season of 1907.

Rainier Home Again—John T. Rainier, president of the Rainier Co. of New York, has returned from a 12,000-mile tour of Europe in one of the cars bearing his name.

Places Stoddard-Dayton Agency—Manager Gilbert S. Smith, of the Hamilton Auto Co., of Philadelphia, has made arrangements with the Crane Automobile Co., of Easton, Pa., to handle the Stoddard-Dayton there.

Weston Promoted—J. C. Weston, formerly in charge of the Detroit branch of Morgan & Wright, has been promoted since the factory moved into Michigan and is now a general representative of the tire house and a sort of an envoy extraordinary and minister plenipotentiary.

A Pierce Stunt—Recently in Luna park, Pittsburg, a regular 32-horsepower Pierce Arrow fitted with a runabout body and no tire chains did a remarkable stunt up the shoot the chutes, the grade of which is said to be 33 per cent and 285 feet from bottom to top. The car entered the lagoon at the lower end, making it necessary to go through about 200 feet of water, averaging 22 inches in depth, before striking the incline. It ascended the chute at an average of 14 miles per hour. At the top it was turned around on a regular turn table and started down the descent, which was made at an average of 8 miles per hour. Midway between top and bottom the brakes were put on and the car came to a dead standstill, the occupants lighting their cigars, then the brakes were released and the car shot down the balance of the incline, striking the water at about 15 miles per hour, thoroughly drenching



ADDITION TO THE FRANKLIN PLANT

A PIERCE HILL-CLIMBING FEAT

the occupants, but in no way hindering the car from continuing its journey through the water to the lower end and out.

Praises Hartfords—Louis Wagner, winner of the Vanderbilt, has sent a letter to the Truffault-Hartford suspension people praising the device and asserting that without the suspensions neither he nor his mechanic could have stuck in their seats going around the turns and over the rough spots in the course.

Free Repairs for Year—Representing no less than six different cars—Pope-Toledo, Pope-Hartford, Pope-Waverley, Pope-Tribune, Franklin and Peerless—the Quaker City Automobile Co., of Philadelphia, has created something of a sensation along automobile row by announcing that it will keep in repair for a year all 1907 model cars sold by it.

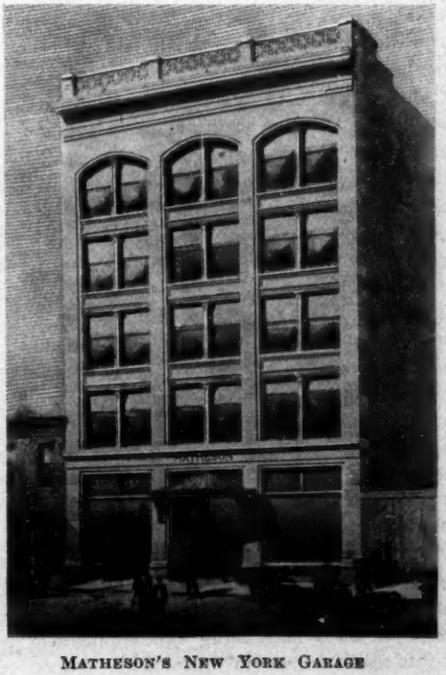
Bankruptcy Petition Dismissed—The request of the creditors of the Consolidated Mfg. Co., of Toledo, O., that the involuntary petition in bankruptcy be dismissed, has been granted. This throws the matter entirely into the hands of the receiver again. The Consolidated concern was the former manufacturer of the Yale car and present maker of the Yale-California motor cycle.

Franklin Increasing Capacity—During the past 3 weeks 75 per cent of the total year's output of the H. H. Franklin Mfg. Co. is said to have been sold, as compared with 25 per cent for the same time last year. The new building which the company is erecting will give an increase in capacity of 300 cars over last season. In addition to the manufacturing building plans have been drawn for a fireproof freight house, 60 by 70 feet and 30 feet high. Railway tracks will be laid on each side of the building for the receiving and dispatching of goods. A saw mill is being built for working up the wood used in sills. This building is 45 by 68 by 30 feet in dimensions. After the lumber is sawed into the desired sizes it is placed in the dry kiln.

New Hoosier Garage—A modern three-story fireproof building has just been completed for the Capital Automobile Co., a recently organized company in Indianapolis. The building is at the corner of New York street and Massachusetts avenue. State agencies for the Reo and Jackson lines have been obtained.

Buys More Land—The Pope Motor Car Co., of Toledo, O., has purchased more property adjoining its present plant, the property, 200 by 375 feet in size, being located at the rear of the factory. The company recently purchased fourteen lots in the neighborhood of the factory, now making about 10 acres the concern has in the form of a square block.

Matheson's New Garage—The Matheson garage in New York will be a reinforced concrete building, with concrete walls, piers, girders, beams, floors, etc., five stories and basement in height, to be fireproof in all parts. The foundations and walls are to be arranged so an addition of three stories may be made at any time hereafter. The upper floors will be arranged for repair and stock rooms. The three intermediate floors will be used for the repository or garage, and are capable of accommodating approximately 150 cars. The first floor on the Seventh avenue side will be the main entrance for the automobiles. In front of this on the Broadway front will be a magnificent show room about 36 by 48 feet in size, with an ornaornamental bronze balcony across the rear, acting as a mezzanine for the office. The basement is arranged for trucking department, with repair pits, oil storage, etc., complete. The building will have cement floors throughout, with carriage wash, gasoline, oil and mop closets on each floor.



MATHESON'S NEW YORK GARAGE

FROM THE FOUR WINDS

Arthur Aspires To Be Judge—William H. Arthur, president of the Chicago Motor Club, is a candidate for municipal judge at the election, which will be held next month.

Ride for 105-Year-Old Woman—Walter M. Brittain, president of the L. C. Hyde & Brittain bank of Beloit, Wis., recently took for an outing in his Royal Tourist an aged friend of the family, a woman who will be 105 years old next January. It was her first ride and she was as enthusiastic as a girl over it.

Donaldson Buys Paper—H. F. Donaldson, who has been identified with the Automobile for several years, has bought the Commercial Vehicle from the Class Publishing Co. The latter has hitherto published both papers. Mr. Donaldson has sold his interest in the Class Journal Co. and will devote his entire attention to the Commercial Vehicle, which will be published from a new office in the uptown garage district. Harry W. Perry, long connected with the Automobile, will join Mr. Donaldson's staff.

Another Federation Ally—Twenty-six automobilists responded to a call for a meeting at Carlisle, Pa., last week, which resulted in the formation of the Cumberland Valley Automobile Association. Edward W. Biddle was elected president; B. Le Roy Plank secretary, and J. H. Gardner treasurer. The club will, in the near future, join the state federation, and will endeavor to have the proposed Philadelphia-Pittsburg highway traverse the Cumberland valley from Harrisburg to Chambersburg. It was also decided to invite all Franklin county automobilists to join the new association.

Alcohol Exhibit—Word comes from Norfolk, Va., that an original and unique feature of the Jamestown ter-centennial, to be held next year, will be the exhibit showing the uses of denatured alcohol for light, heat, power and fuel. It will also include tests of its application to domestic and industrial purposes in a building designed especially for that purpose. The experiments and tests will be under the direction of Dr. Charles E. Monroe, professor of chemistry at the George Washington University, Washington, D. C., and chief of the special denatured alcohol exhibit, who is now traveling to secure an exhibit that will be one of the attractive and instructive features of the ter-centennial. He is making extensive plans for the display of the many uses to which it can be applied, and has just completed a series of tests embracing the application of this agent in several branches of industry. This exhibit has received the endorsement and co-operation of the National Alcohol Association, which has appointed a special commissioner to assist Professor Monroe in the work.

FIRST RIDE FOR 105-YEAR-OLD WOMAN

Owen a Benedict—Percy Owen, of New York, who was a member of the American team in the race in Ireland for the Bennett cup, was married last week to Miss Marian B. Nichols, of Haverhill, Mass.

Another Mileage Motorist—A long-distance tourist who attracted much attention in Philadelphia last week was Charles E. Chapin, of Denver, Colo., who stopped in the quaker city overnight while en route to Boston. His vehicle is a 1905 Elmore, shod with its second set of G & J tires, and the combination has carried him more than 19,000 miles since the first of the present year.

Economical Traveling—John A. Seaverns, a Boston motorist, recently made a run in his Aerocar from Marblehead to Brooklyn and return—with side trips—a distance of 650 miles. There were four passengers, luggage and a full touring equipment weighing, with the car, 3,600 pounds. At the end of the journey, Mr. Seaverns states that the gasoline consumption averaged 29¼ ton-miles per gallon, while the total amount of oil used was 7 quarts. He claims the total cost was only 1¼ cents per mile for the whole party with baggage aboard.

Canadian Plant Delayed—It is reported that work on the factory being built at Welland, Ont., near Buffalo, is being delayed. The staff of men employed on the plant was laid off recently with instructions to return in a few days. John Fell Mills, a member of the company, left Welland a few days ago on a business trip to arrange for the purchase of machinery. A somewhat peculiar situation in connection with the company has been revealed. The by-law passed by the ratepayers of Welland, fixing the assessment of the automobile company and granting it certain water privileges, stipulated that the works were to be erected on property owned by Alexander Griffiths, of Welland. After the by-law was passed the company is said to have let contracts to have the work done on the McAlpine instead of the Griffiths property. This action is alleged to have rendered the by-law null and void.

Hill-Climb Postponed—The hill-climbing contest scheduled at Rochester, N. Y., last Saturday by the Rochester Automobile Club has been postponed to next Saturday because of unfavorable weather conditions.

Car Given R. F. D. Driver—Persons living on the rural free delivery route No. 1, near Paterson, N. J., have given the carrier, Pete F. Lydecker, an automobile in which to make his deliveries. Lydecker's route runs through the Preakness mountains and covers 27 miles. He made the journey recently in 3 hours 45 minutes, while with a horse and wagon it takes him 8 hours.

Placing Danger Signals—The Automobile Club of Philadelphia, in view of the number of automobile-trolley accidents on Church road, decided not to wait for the unwinding of the official red tape preliminary to the erection of warning signs at points where that road crosses the various suburban trolley lines, and has put up on the road half a dozen such danger signals at its own expense.

Holcomb After Record—Bert Holcomb has arrived in Chicago and is making plans for an attack upon the Chicago-New York record, now held by the Franklin at 56 hours 28 minutes. He hopes to put the mark well under 50 hours in the Columbia with the magnetic clutch and motor auxiliary drive, which will be put to its first public test in the drive. Lawrence Duffie and De Forest Lull will spell Holcomb at the wheel. The distance to be covered is about 1,120 miles, the finish being at Forty-second street and Broadway, New York city.

All Three Whites—A photograph shows an interesting line-up in front of the Volcano house, Kilauea, Hawaii. At the head of the procession is one of the first machines made by the White Sewing Machine Co., No. 114. It was sold to A. James of Hilo, on the island of Hawaii. Next in line is a 1905 White car owned by M. Kennedy of Hilo. Following this is a 1906 White car owned by J. Watt of Olaa. This photograph was taken on July 4 of this year. Kilauea volcano is one of the interesting features of the islands, and the Volcano house being situated some 4,000 feet above sea level, it is the Mecca of Hilo residents during the warm season. The roads, with few exceptions, are good, and it is a delightful automobile ride from

Hilo to the Volcano house, some 32 miles, not excessive grades, and in no case is it necessary to use the emergency gear.

Pickens in Theatrical Game—W. H. Pickens, manager of Barney Oldfield, has bought from Liebler & Co. a half interest in "The Vanderbilt Cup" western company. Oldfield and Eddie Bald, by the way, will retire in a fortnight from "The Vanderbilt Cup," now playing in the east.

A. C. A.'s Dinner—In accordance with its custom, the annual dinner of the Automobile Club of America will be given on the last night of its seventh annual automobile show in New York. It is expected that with the thousands of automobile tradesmen and sportsmen in New York from all over the country, to visit the show and to inspect the club's new club house, there will be a record number of diners at Sherry's to hear automobile topics discussed seriously and humorously.

Shy of Bidders—The commissioners of Marion county, Ind., in which Indianapolis is situated, are in rather an embarrassing position, because only one firm has offered a bid to furnish the automobile the commissioners desire to purchase. An appropriation of $3,000 was obtained for the purpose some time ago, but in advertising specifications the commissioners stated that the automobile must be kept in repair for 1 year, without expense to them. As a result but one company, the Buckeye Mfg. Co., of Anderson, has offered a bid. It is probable bids will be advertised for again.

Asks About Alcohol—The commissioner of internal revenue at Washington has received a communication from A. P. Chamberlain, of Des Moines, Ia., in which he states that he is desirous of ascertaining the particulars in regard to the establishment of one or more plants on his interurban lines of railway running out of Des Moines, said plants to be used in the manufacture of denatured alcohol. Commissioner Yerkes sent him all the government regulations pertaining to the subject, stating that "alcohol has always been dealt with by this bureau as an object of taxation, and that the denatured alcohol law will be dealt with by the internal revenue department from an administrative standpoint only."

Convicts Working on Roads—Recently fifteen convicts from Walla Walla, Wash., were removed to Lewis county, where they will be put to work on roads. This is the first experiment of the kind in that state, and is made possible by an enactment by the last legislature.

Darracq Confidence—It developed at a dinner given Louis Wagner in New York since his Vanderbilt victory that the Darracq people had provided numbers only from one to six to be held up before the driver at various points of the course to show his position in the race. Only one of the numbers was needed, however, for Wagner took the lead at the start and held it to the end, with the result that he was winner of the cup.

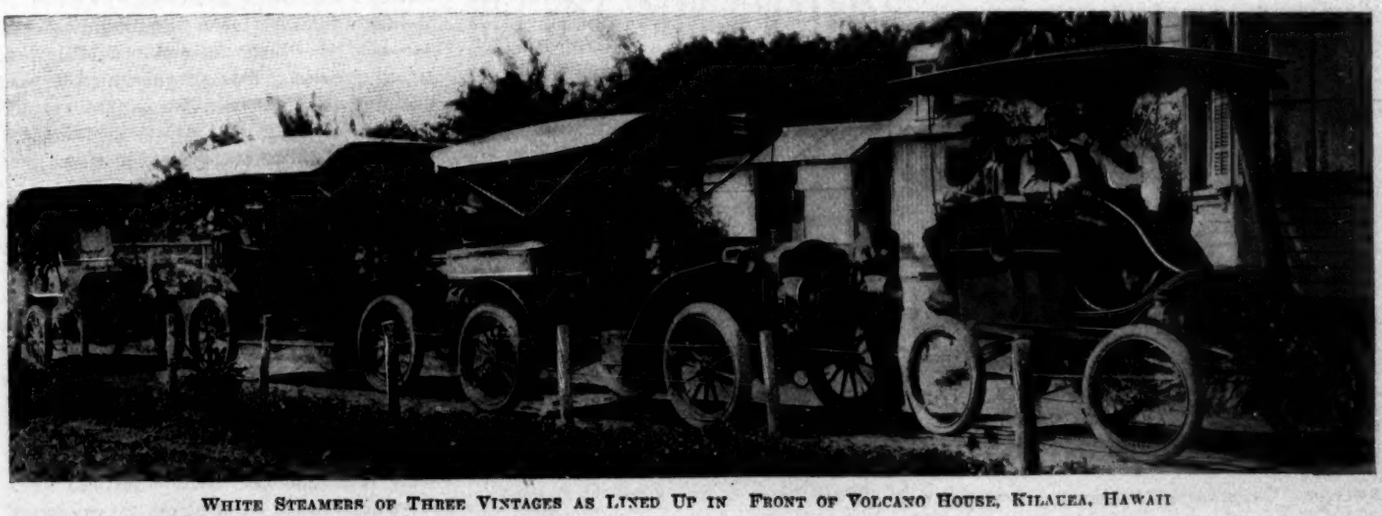
Strike Slows Road Work—The work on the Lewiston road, near Niagara Falls, N. Y., is progressing favorably, despite the recent labor disturbance. The strike of the laborers caused slight delay, but did not retard the progress appreciably. Considerable drilling is necessary before the plans of the New York state department are fulfilled. Lewiston mountain is rapidly being cut down, and in the highest place excavation to a depth of 14 feet will be necessary. This gradually recedes to 5 feet, but as there is much rock to be blasted extra time is being consumed.

New Road Almost Ready—Before the usual heavy automobile travel sets in next spring from New York to Atlantic City the Atlantic county, N. J., board of freeholders will have had turned over to it a 7-mile stretch of new county road between Atsion and Hammonton, the absence of which has hitherto added a great many miles to the trip. This connecting link traverses a section of country the "roads" of which have always been in an execrable condition and which have necessitated the traveler's covering two sides of a triangle. When this road is completed there will be a level, smooth highway across country all the way from Mount Holly, through Atsion, to the Philadelphia-Atlantic City route at Hammonton.

Rolls Coming to America—C. S. Rolls, the winner of the Tourist trophy race and recently taking part in the Bennett balloon trip, is about to sail for New York and hopes to compete in all the end-season automobile events in the states.

Show Features—In addition to motor cars, there will be a very attractive aeronautical exhibition in connection with the Grand Central palace show in New York, in which everything new and novel in the balloon and airship line will be on exhibition. A feature of this part of the show will be Lieutenant Frank P. Lahm's balloon, "United States," which won the recent international contest from France to the English coast, and the two balloons "Orient" and "Centaur." The exhibition of commercial vehicles will also be very complete, and it is more than likely that a number of the cars which will take part in the club's test for commercial vehicles will also be on exhibition.

Canada's First Gymhkana—The first gymhkana held in Canada took place October 10. It was conducted by the Automobile Club of Canada. F. B. Stockwell, manager of the Dominion Motor Car Co., won the greatest number of points, thereby getting a leg on a silver cup, which has to be won 2 years to complete ownership. The most amusing and interesting event was the touring car relay race, in which contestants were obliged to get off car, remove coat, start engine, replace coat, light cigarette, drive around, stop on tape, furnish one passenger with a cigarette and light and assist to seat, drive around again, stop on tape, get out and assist two passengers into tonneau, drive around again, stop on tape, assist all passengers out of car, drive around again and stop on tape. There was considerable maneuvering to get on the tape. Stockwell lost valuable time by turning a coat-sleeve inside out and not noticing it until he tried to get the coat on. The ball and tub race—throwing apples into barrels while passing—was competed in by women.



WHITE STEAMERS OF THREE VINTAGES AS LINED UP IN FRONT OF VOLCANO HOUSE, KILAUEA, HAWAII

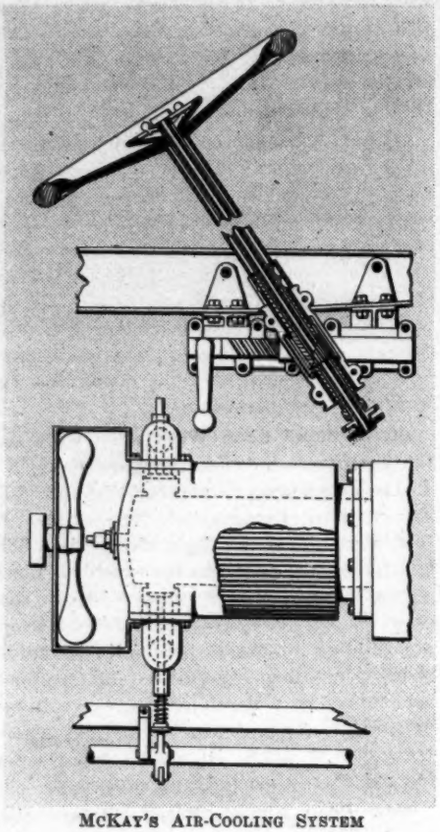
CURRENT AUTOMOBILE PATENTS

Four-Wheel Drive—No. 832,749, dated October 9; to C. Schmidt, San Francisco, Cal.—This drive applies specially to heavy commercial vehicles. A vertical, four-cylinder motor carried in rear of the front axle transfers to two sliding gearsets, one in the front axle casing and the other in the back axle, the shafts of these gearsets being crosswise of the car, the mainshaft carrying on its end pinions that mesh with large gears on the inner sides of the road wheels. A cardanshaft communicates between the motor and gearsets. On the mainshafts of the gearsets are a loose bevel gear and beside it a loose worm gear, and on the ends of the driveshafts to the gearsets are bevel gears and worm wheels to mesh with those of the gearsets. Arrangements are such that through the medium of clutches the bevel and worm gears of the sets can be secured to the driveshafts. The driver's control is such that when gears are shifted in the front gearset they are simultaneously shifted in the rear gearset and the clutches are brought into action at the same time.

Universals in Rear Axle—No. 832,992, dated October 9; to L. P. Mooeers, Cleveland, O.—The differential housings is a casting divided horizontally in line with the shaft bearings so that with the top half of the housing removed the differential and driveshafts to the wheels can be removed. These driveshafts are each in two parts, the inner half with its inside end inserted in the differential and its outer end furnished with a jaw coupling, by which it is universally coupled to the outer half of the axle driveshaft. This joint gives an arched construction to the axle and permits of dishing the back wheels approximately 2 per cent. The axle shafts are carried on ball bearings.

Friction Shock Absorber—No. 832,626, dated October 9; to O. W. Schaum, Philadelphia, Pa.—On the outer surface of the side frame of the motor car is a friction drum. Clasping the drum is a friction-lined clamp or band, which band is carried on a long V-shaped arm, the outer end of the arm having connection through a link with universal action with the spring of the car. Means are provided for varying the tension of the band on the drum.

LAW'S WORM AND RACK STEERING GEAR



McKAY'S AIR-COOLING SYSTEM

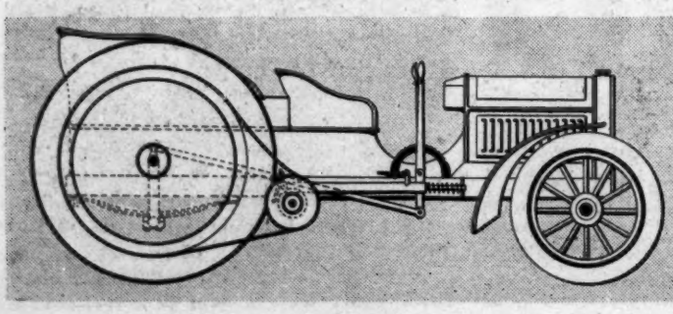
Belt Drive—No. 832,636, dated October 9; to B. W. Switzer, Chicago—In front of the back axle of the motor car is a jackshaft carrying on its end small pulleys over which pass ropes that encircle large pulleys on the rear road wheels, thus transferring the motor power to the wheels. Through a side lever provisions are made for shifting the drive wheels forward or back. They can be moved to the front so as to contact with the jackshaft pulleys, giving a reverse drive. Brake shoes are carried near the jackshaft so that these shoes can be moved into contact with the tires of the back wheels or the brakes can be held rigid and the wheels moved up against them, giving a braking action.

Air-cooled Motor—No. 832,803, dated October 9; to C. H. McKay, Fitchburg, Mass.—Surrounding the outer wall of the cylinders of the motor is a series of metal air tubes paralleling the cylinder bore. These tubes are partially imbedded in the cylinders. Covering the end of these tubes at the cylinder head is a jacket or hood within which revolves a fan that draws air from the outside and forces it through these tubes, the opposite ends of the tubes being open to the atmosphere. The tubes throughout their length are further encased or jacketed by a continuation of the fan hood, so that cooling air is also circulated around the outsides of the tubes.

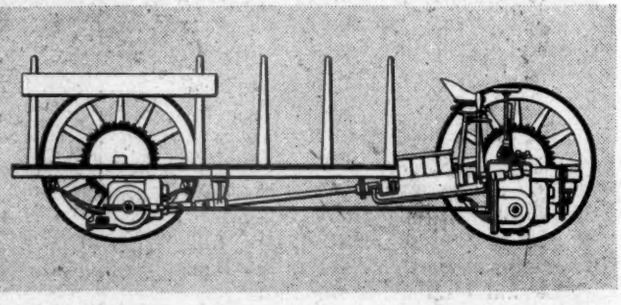
Rack and Worm Steering Gear—No. 832,798, dated October 9; to F. A. Law, Hartford, Conn.—Carried on the side channel of the car frame is a base plate formed with a guideway in which rests a sliding member, with a radius arm on one end fitted for ball and socket connection to the tierod and thence to the steering knuckles. In one side of the sliding member is a toothrack which is in mesh with the worm on the bottom of the steering column. As the steering wheel is turned to right or left the rack sliding member is moved to front or rear owing to the meshing of the worm and rack.

Electrical Speed Indicator—No. 832,600, dated October 9; to H. Dahl, Berlin, Ger.—On a vertical shaft is a rotating wheel, on the circumference of which is a series of small bodies held to the circumference by springs of varying tension. As the wheel revolves, owing to centrifugal force, these little members fly outward at varying times according to the tension of the spring holding them, and as they fly out they contact with contact pieces and so establish electrical connections by which a speed recording gear is driven. The resistance offered by these contact bodies varies, and as only one body is in electrical contact at one time the amount of electricity furnished to propel the speed-measuring gears is proportioned.

Water Motor Control—No. 832,901, dated October 9; to J. Grouvelle and H. Arquembourg, Paris, Fr.—In the water system of the motor is inserted a diaphragm against one side of which the water in its circulation presses. This diaphragm has connections with the throttle of the carburetor. The diaphragm has also a valve for bypassing water at times.



SWITZER'S COMBINATION PULLEY-DRIVE MOTOR CAR



SCHMIDT'S FOUR-WHEEL DRIVE, WITH SHAFT TRANSMISSION

BRIEF BUSINESS ANNOUNCEMENTS

Santa Barbara, Cal.—The Wood-Redington Co. has taken the agency for the Mitchell.

Trenton, N. J.—The Havana Automobile Co., with a registered office at Paterson, has filed a certificate of dissolution.

Middletown, Conn.—The Hubbard Motor Co. is about to erect a new building, 50 by 200 feet, at North Main and Stack streets.

Cleveland, O.—The new automobile plant of the White Sewing Machine Co., which is being erected on St. Clair avenue, is almost completed.

Pittsburg—H. O. Smith, president of the Premier Motor Mfg. Co., and also of the G & J Tire Co., has severed his connection with the latter concern, and will devote all his attention to the Premier.

Pittsburg—E. D. Nevin, agent for the Darracq, will establish offices in the Farmers' Bank building. As it is late in the season, he will not open a garage, but will have storage room with the Fort Pitt Co.

Pittsburg—The Central Automobile Co., which represented the Reo last season, has made arrangements to continue as agent for this machine, and, in addition, will handle the American Mors. This is the first time this latter car has been represented in Pittsburg.

Bay City, Mich.—The Smalley Motor Co. is building an addition to its main building. The company is now building motors for denaturized alcohol, and is finding a heavy market in Cuba, South America and other foreign countries where gasoline prices are prohibitive. Last week the company received an order for seventeen engines from Australia.

Houston, Tex.—The Texas Automobile Co. has filed articles of incorporation with a capital stock of $10,000, the incorporators being Ivan F., Vivian and T. S. Vick. They have purchased the automobile business of G. W. Hawkins, located at 614 Milan street. They will have a branch house in San Antonio, which will be managed by Vivian Vick, while Ivan Vick will run the Houston end of the company's business.

New York—The Heights Garage & Storage Co., which was recently incorporated at Albany with a capital stock of $42,000, is to build a large garage to be situated west of Riverside drive, at One Hundred and Sixty-first street. Eleven lots have been purchased, and the contract for the structure has been awarded to James Pilkington, work to begin at once. The garage is to be run on a co-operative plan, and will run from Riverside drive to the New York Central tracks. Among those mentioned as incorporators are William J. Weller, of Brooklyn, and Wilbert Garrison, of 441 Pearl street; P. N. Fowler, of Pearl and Rose streets.

South Beloit, Wis.—The Warner Instrument Co., of Calumet, Mich., is to build a manufacturing plant here.

Boston, Mass.—Arthur Cutler Morse has been appointed New England agent for the Panhard and has opened offices in the Motor Mart.

Boston, Mass.—A. J. Coburn has announced that he has secured the agency of the Cameron car for New York and New England outside of Maine.

Birmingham, Ala.—A large automobile company is endeavoring to secure a site in this district, and efforts are being made to induce the concern to locate in Bessemer. Nothing definite is as yet known.

New York—The Atlantic Motor Car Co., which removed 2 weeks ago to 1655 Broadway, has made another change, now being situated at the corner of Fifty-seventh street. This company is the agent for the Stoddard-Dayton.

Philadelphia—H. C. Ambler has begun work on a two-story automobile show room, light manufacturing plant, garage and motor repair shop, at Broad and Wood streets, for Bergdoll, Ambler & Co. It will cost $20,000.

Los Angeles, Cal.—A change has taken place in the local agency of the Maxwell company. It has been reorganized as the Maxwell-Briscoe-Wilcox Co., with a capital stock of $100,000. J. W. Wilcox, of the local agency, 1211-1213 South Main street, has been elected president and manager, while his son, E. J. Wilcox, will be secretary and treasurer. Arrangements are under way for larger quarters, accommodating from 100 to 150 machines, and several additions have been made to the staff. The company will not only direct the Maxwell business in this state, but in Arizona and New Mexico as well.

Newark, N. J.—The Roseville Motor Co. has given up the agency of the Pope-Hartford, and has taken on the Compound.

Orange, N. J.—The Orange garage has recently added to its line of Franklin cars the agency for the Pope gasoline line.

Trenton, N. J.—The De Luxe Motor Co., of Jersey City, has filed a certificate increasing the capital stock from $125,000 to $1,000,000.

Newark, N. J.—The Hollywood Motor Co. will continue to represent the Marion during the season of 1907, and will probably add another prominent car to the list.

Pittsburg—The Keystone Automobile Co. is to erect a new building to be used as a repair shop. The structure will be a one-story brick, 30 by 50 feet, at the corner of Euclid avenue and Commerce street.

Cumberland, Md.—The Johnson-Ingman Air Motor Co. have announced that W. H. Johnson, the inventor of the Johnson-Ingman air motor, has been elected president and manager of the company. Charles Buzzard, of Hillsboro, O., has been appointed special representative and manager for the state of Ohio.

Bridgeport, Conn.—The Bridgeport Vehicle Co. is making arrangements for the erection of a plant on the site recently acquired by the company on Fairfield avenue. The main building is to be three stories in height, and will have 20,000 square feet of floor space. A power plant will also be erected in connection with the enterprise.

Nashville, Tenn.—The Rock City Automobile Co. has been recently organized and is now domiciled in the old stand of the Southern Automobile Co., on Third avenue, North. The company will have the local agency for the Reo, and the Waltham-Orient machines, and in addition will conduct a general automobile business and will have a sales and repair department.

Detroit, Mich.—The American Machine Mfg. Co. has increased its capital stock by the addition of $20,000 preferred to $40,000 common, and the payment in full of the common stock, only half of which had previously been paid in. Additional floor space has also been secured, and new machinery installed, and the company will engage in the manufacture of motor trucks. Paul Arthur is the designer of the new truck. If the enterprise is a success the company will erect a new factory on a site recently acquired at Harper avenue, in which case the Champlain street place will be used as a garage and salesroom.

RECENT INCORPORATIONS

Cleveland, O.—Cleveland Motor Co., capital stock $3,000,000. Officers elected: President, W. G. Clot; vice-president and treasurer, James Laughlin; engineer and superintendent, S. W. Hartley.

New York—A. R. Mosley & Co., capital stock $30,000; to manufacture automobile attachments and machinery. Incorporators, A. R. Mosler, W. G. Liebling and M. M. Blumenthal, all of New York city.

Albany, N. Y.—Howard Motor Works, capital stock $25,000; to manufacture motors, engines, automobiles, etc.; incorporators, H. F. Frevert, and D. G. Phillips, of New York, and William S. Howard, of Yonkers.

Holyoke, Mass.—Holyoke Motor Foundry Co., capital stock $100,000; incorporators, Lewis Sanders, of Nyack, N. Y., and E. T. McHugh, of Holyoke.

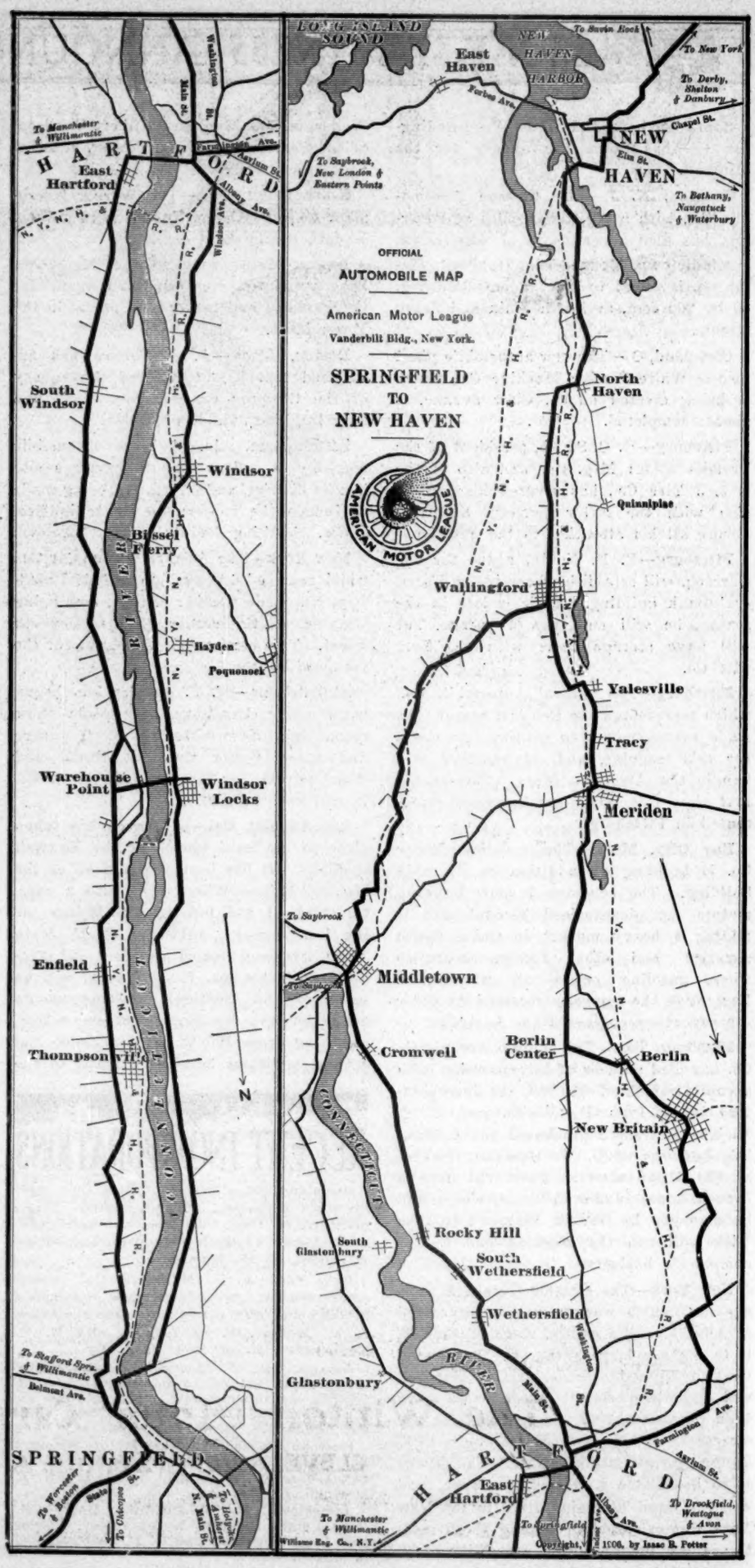
Jamestown, N. Y.—Jacobson Motor Co., capital stock $100,000. Incorporators, Charles and Jacob Jacobson and G. F. Sellstram, all of Jamestown.

American Motor League

Official Bulletin

National Headquarters, Vanderbilt Building, New York

MAP OF ROUTES

Springfield, Mass., to New Haven, Conn.

Easy grades, good roads and delightful scenery are found throughout the Connecticut River valley, and nowhere more abundant than on the route between Springfield and Hartford, at which last named city tourists bound for New Haven generally leave the valley and pursue a course, still over good roads, through New Britain, Berlin, Meriden and Wallingford. The route from Springfield to New Haven is part of the main route between Boston and New York and is attracting motorists in increasing numbers from month to month. The distance is about 70 miles. From Springfield the trip southward is generally made on the easterly side of the river, sometimes all the way to East Hartford, though more often to Warehouse Point, where there is a bridge crossing to Windsor Locks. From this place the road leads directly down the west side of the river through Windsor to Hartford. From Hartford the run to New Haven is often made southward via Main street, following a trolley line to a point beyond Wethersfield and thence southward through Rocky Hill to Middletown. From this point there are two routes running southeasterly, one to Meriden, the other to Wallingford, where connection is made with the main line. For lack of space no attempt can be made here to describe these routes in detail. This will be done in the official road books, which will contain all official maps, and a copy of which will be sent to each member of the league. In the meantime, and for convenient use, these maps are being printed on cards and these will soon be ready for distribution. New maps are being prepared from week to week and every effort is being made to supply the demand for route information without exacting a special charge from members. If the reader is willing to contribute a little route information in support of this effort a line from him to that effect will be appreciated. This work of the league demands great care, labor and expense. It should receive the support of all automobilists. There is no initiation fee; annual dues $2; full printed information will be sent to the reader on request. Any motorist interested in the organization should immediately get in touch with headquarters. Address American Motor League, Vanderbilt building, New York.